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PORTO RICO
AND ITS PROBLEMS

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PORTO RICO AND ITS PROBLEMS

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A WORD TO THE READER

The present volume, *Porto Rico and Its Problems,* was published by the Brookings Institution some years ago and contains much valuable material on Puerto Rico. It presents a fair picture of conditions and problems in Puerto Rico nearly two decades ago. Some of the problems have been courageously met and solved, others still await satisfactory solution, and new problems have arisen from changing circumstances in a changing world.

As a contribution to the interest of the reading public in matters relating to Puerto Rico, the Office of Puerto Rico takes pleasure in issuing a reprint of this comprehensive survey of the Island's conditions and problems as they appeared to the investigating staff of the Brookings Institution.

The Office of Puerto Rico is indebted to the Brookings Institution for permission to reprint this authoritative work.

Emilio M. Colon
Executive Director

PREFACE

Various groups of Porto Rican citizens some two years ago conceived the idea, apparently more or less independently, that if a scientific study were made of the Island's persistent economic difficulties a basis might be found for the inauguration of constructive developments. Among the agencies whose interest was invoked was the Social Science Research Council, which is concerned with the promotion rather than with the conduct of research. This Council, after a preliminary survey of the requirements of the task, endorsed the project and recommended the Brookings Institution as the agency best qualified to conduct such an investigation. After mature consideration, the Institution decided to undertake the survey as a part of its general program of work, utilizing only its own financial resources for the purpose. The study was begun in the autumn of 1928.

For the purpose in hand it was necessary to supplement the regular staff of the Brookings Institution. Dr. Victor S. Clark, recently Editor of *The Living Age,* author of "History of American Manufacturers," and Commissioner of Education in Porto Rico under the military governorship, was chosen as director, and has had primary responsibility for the organization and carrying through of the investigation. In addition to his work on many chapters in the text, he has contributed the appendix on The Sugar Industry.

Dr. Frederick H. Newell, President of The Research Service, Inc., of Washington, is responsible for the chapter on Public Works. Professor J. A. Dickey, of the University of Arkansas, worked on the agricultural phases of the problem and has contributed the appendices on Tobacco and Coffee. Professor Erich W. Zimmermann, of the University of North Carolina, is responsible for the bulk of the material in the chapter on Commercial Organization and for some of that in the chapter on External Trade and Financial Relations. Mr. Hugh J. Reber, formerly a member of the American Financial Mission in Persia, is the author of Chapters VI to XII, inclusive, which

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deal with the important problem of fiscal administration. Dr. Frank Tannenbaum, author of "The Mexican Agrarian Revolution," made the study of Rural Living Conditions, and also contributed materially to the discussion of Education and Public Health.

We are happy to be able to express here our appreciation of the work of three Porto Rican investigators, Professor José C. Rosario, who has contributed the appendix on the Porto Rican Peasant and His Historical Antecedents; Señor José Laracuente, who presents in Appendix F a General Survey of a Farm; and Señor Samuel L. Rodríguez, who contributed important materials upon the organization and customs of the retail trade, and also to Mr. C. E. Miner, of San Juan, who assisted in the municipal study.

Mr. Henry P. Seidemann of our regular staff is responsible for the section in Chapter V which deals with Municipalities, for the statistical material in Chapter XIV, and for the data in Appendix C on International Accounts which are also used in Chapter XV. Mr. Charles L. Dearing acted as general statistician and collaborated in the writing of the chapter on Credit and Banking Facilities. In addition to these staff members, the following committee has collaborated in the making of the analysis and recommendations: Cleona Lewis, Leverett S. Lyon, Harold G. Moulton, Edwin G. Nourse, and William F. Willoughby.

HAROLD G. MOULTON,
President.

The Brookings Institution
March, 1930.

A WORD TO PORTO RICAN READERS

Any volume upon Porto Rico presenting the findings of several collaborators, some of whom have of necessity viewed the Island and its affairs but briefly or from a distance, will inevitably lack the intimate touch of a description based upon long association with the country and its people. What such a study gains in authority and judicial balance from the convergence of trained minds with many comparative viewpoints upon its theme may be offset to some extent for Island readers by occasional misinterpretations or misconceptions. For these, we crave indulgence in view of the larger purpose of our labors.

Two dissimilar cultures are in process of mutual assimilation within the Island. Its people constitute a relatively small and isolated community vividly conscious of its individuality, and they are correspondingly jealous of its special character and privileges. They may be politically divided among themselves, but they instinctively stand together against the outside world. Naturally, therefore, they wish to direct their own affairs. Their desire to do so is not anti-American but American. In a broad sense, the present study points the way toward a completer realization of this ambition, by building up an educated and economically independent citizenry and by governmental reforms that will make the legislative and administrative machinery more manageable and efficient. We ask that the following pages be read with this in mind.

A detailed acknowledgment of the kindly courtesies and practical aid which the members of the Survey received in Porto Rico would fill many pages. Public officials from the Governor to the humblest clerk, and private individuals from financiers and corporation managers to laborers and peasants, responded generously to every demand made upon them for information and assistance. The fact that these requests came at the time when both government and private business were disorganized by the recent hurricane and most of those to whom our inquiries were directed were burdened with extra duties never lessened this spirit of co-operation. Not a single disagreeable incident marked our contacts with the people. With abundant reason, therefore, this report is written in a spirit of appreciation and affection for them and their country.

Victor S. Clark.

February, 1930.

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INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

Porto Rico presents two problems to her own people and to the Federal government. The first is economic—how to raise the incomes and the standards of living of her people to something approaching a parity with those prevailing in continental United States. The second is political—how to establish mutually satisfactory public relations between the Island and the mainland. While it is to the former of these problems that this inquiry is primarily devoted, the two cannot be dissociated. The political system of the United States is the product of exceptionally advantageous material conditions. If American political institutions are to succeed in Porto Rico, the material conditions of life there must be greatly improved.

Long before the American occupation in 1898 the unsatisfactory situation of Porto Rico's rural population, which makes up the bulk of the total, occupied the attention of enlightened people in the Island. It appears that until the latter part of the last century, although signs of physical degeneracy in the white and mixed races of the tropics had been noted, the food supply was relatively abundant in Porto Rico. About the time of the American Civil War, when the wage of common laborers was only 25 cents a day and African slavery still existed, the dependents of the big plantations frequently cultivated gardens of their own and kept cows, horses, pigs, and chickens, and the laborers were given one or two meals each day by their employers. A patriarchal social organization survived—free workers being divided into two classes, a small peasantry living chiefly in the mountains and tilling its own land, and a migratory landless group of laborers, including emancipated slaves who moved from district to district in search of work. For a period about the middle of the century landless laborers occupied a semi-servile position, being compelled to carry *libretas,* or documents, containing the name and address of their employer, and they were liable to arrest under vagrancy laws unless they could prove that they were regularly engaged in service.

Before the end of the Spanish régime, however, important changes in the economic organization of the Island were occurring. The area devoted to food crops was apparently declining before 1898 and Porto Rico imported a considerable fraction of the food stuffs it consumed. In this the Island resembles our own cotton states and the neighboring West Indian Islands. Over 70 per cent of the customs duties collected by the government were levied upon imported foods, and in addition there were heavy excise taxes on provisions.[1]

Undernourishment among the common people was apparently chronic, and anemia, the result primarily of hookworm, was so common as almost to justify the claim that it was universal. The diet of the *jíbaro,* or mountaineer, was criticized by Spanish and Island writers as both inadequate and unbalunbalanced.[2] Writing in 1887 a distinguished local physician declared that the nourishment which the great majority of the country people received was so scanty that it scarcely sufficed to replace organic waste, and not infrequently provisions were of such bad quality that their use should have been prohibited.[3]

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[1] . . . "Articles of common use, such as rice, flour, corn, charcoal, wines, etc., not only paid heavy import duties, but were subject, together with fresh beef, milk, and sugar produced in the Island, to a consumo tax at the gates of the municipalities. For example, flour, which had paid a duty of $4 at the custom house per 100 kilos, paid at the city gates $2.50 consumo tax, or a total of $6.50, which was at the rate of about $3 a hundredweight; rice, the common article of diet, paid $2.70 import duty and $1 consumo tax; fresh beef paid a consumo tax of $5 a hundred kilos, or 220 pounds. This was in addition to the head tax paid the city by the slaughterer." Carroll, Henry K., *Report on the Island of Porto Rico*, G. P. O., Washington, 1899, pp. 23, 398.

[2] ". . . de aquí nace esa pobreza de sangre, esa falta de desarrollo muscular, ese aspecto macilento y enfermizo que tanto llama la atencion de los europeos al llegar á estas playas; pero por más que sea una verdad que nadie se ha cuidado de hacerles comprender á esos hombres las ventajas que les produciría una alimentacion más rica en jugos nutritivos, necesario será poner en duda los efectos de tal propaganda, toda vez que las condiciones de su alimentacion han de depender, naturalmente, de la importancia del salario adquirido."—Brau, D. Salvador, *Las Clases Jornaleras de Puerto Rico*, San Juan, 1882, p. 42.

[3] Del Valle Atiles, Francisco, *El Campesino Puertorriqueño;* Iglesias Pantín, Santiago, *Luchas Emancipadoras*, pp. 102-03.

After the hurricane of 1899, the military governor of the Island wrote:[4]

> So great is their poverty that they are always in debt to the proprietors or merchants. They live in huts made of sticks and poles covered with thatches of palm leaves. A family of a dozen may be huddled together in one room, often with only a dirt floor. They have little food worthy of the name and only the most scanty clothing, while children of less than seven or eight years of age are often entirely naked. A few may own a machete or a hoe, but more have no worldly possessions whatever. Their food is fruit, and if they are wage-earners, a little rice and codfish in addition. . . . It is hard to believe that the pale, sallow, and often emaciated beings are the descendants of the conquistadores who carried the flag of Spain to nearly all of South America, and to one-third of North America.

During the past 30 years several reports of the Insular or Federal government have dwelt upon special aspects of the same central issue. But in spite of the study that has been given to the problem and such efforts as have been made to relieve the situation, the condition of the masses of the Island people remains deplorable. While distress has, of course, been intensified by the disastrous hurricane of 1928, even during the most favorable periods the picture of life on the Island is drab indeed.

A daily wage of 70 cents, with employment four days out of seven, represents approximately the earnings of the larger part of the daily laboring population. It is doubtful if the average income of the rural workers in Porto Rico exceeds $150 a year. The earnings of wife and children, together with supplemental income from the cultivation of small parcels of land, the raising of poultry and livestock, increases the income of the average rural family to something like $250 to $275 a year. The earnings of the town laborer, taking into account the higher costs of living in the city, are not greatly in excess of those of the country laborer. Since the larger proportion of the foodstuffs and clothing required by the people of the Island is imported from the United States and other countries, the prices of most of the basic commodities of life are not articulated with Island wage rates, but are determined by cost factors in other countries. Accordingly, these income statistics afford a real indication of the economic condition of the masses of the people—although allowance must, of course, be made for the fact that housing, fuel, and clothing requirements are far different in the tropics than in the temperate zones.

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[4] Davis, Brigadier General George W., *Report on Civil Affairs of Porto Rico*, 1899, G. P. O., Washington, 1900, pp. 493, 494.

It is small comfort to reflect that the conditions of life in Porto Rico are perhaps not worse than those in other densely populated tropical countries. The Porto Ricans probably receive higher money wages than the laborers of Jamaica, Haiti, and the Lesser Antilles.[5] Nor, so far as we can judge, is unemployment more prevalent in Porto Rico than in the neighboring islands. Neither can we apply mainland standards to a land of perpetual summer. Our own people put up with sketchy shelter and attire when they move into northern camps or seaside cottages. What is really important is that the conditions of life in many densely populated tropical islands are deplorable, and that the particular island, Porto Rico, has become a part of the United States and now rightfully aspires to share in the economic, as well as the political, advantages which the union involves.

It is impossible to measure the degree of improvement which may have occurred since the American occupation of Porto Rico began in 1898. Wage and price data are not of a character to permit any careful statistical or quantitative measurement of the change. Certain broad inferences can, however, be drawn from direct observation of the people then and now. The country folk one now meets on the highways and byways are, on the whole, better clothed than formerly; many of them now wear shoes, where practically all formerly went barefoot;[6] and several times as many tidily clad children as before are to be seen in the public schools. Board houses with floors and galvanized iron roofs are met with in districts where a large part of the population previously lived in thatch shelters, often without floors. These facts compel the conclusion that average incomes must have increased since the turn of the century. Other physical manifestations of improvement are found in model school buildings, improved highways, mechanical transport, sewers, water supply, and other accessories of modern civilization which the Island now possesses.

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[5] Gobierno de Puerto Rico, *Décimo Informe Anual de Negociado del Trabajo*, p. 32.

[6] Shoe imports have increased from 400,000 pairs annually in 1898 to 1,765,000 pairs in 1928.

While the standard of living on the whole thus appears to be somewhat higher than it was 30 years ago, there is no evidence to indicate that it has been improving in recent years. Indeed, it is possible that since the war period conditions have grown gradually worse. In any event, as the more detailed analyses in Chapters II and III indicate, present conditions must be vastly improved if Porto Rico is to be placed upon a basis comparable with that of the States of the Union.

In outlining the basic problems of Porto Rico, it is necessary to call attention to the fact that, during the period of the American occupation, there has been an enormous inflow of capital, managerial initiative, and technical experience from the mainland. Development capital has entered the Island through both public and private channels. About $50,000,000 of loan funds, in addition to tax revenues amounting to perhaps one-tenth this sum, have been spent by the government during the past 30 years upon roads, public buildings—especially schoolhouses—municipal utilities, and combined irrigation and power plants. Their construction has given employment to many thousands of laborers. Such expenditures cannot, however, continue indefinitely upon their present scale. The Island will reach public works saturation, and while the maintenance, modernization, and occasional extension of existing improvements will employ a considerable number of workers, the proportion relative to the total population is likely to decline.

Incidentally, public works represent in Porto Rico, more conspicuously than they do upon the mainland, a form of social thrift. The individual, partly from habit and partly from economic impotence, accumulates little or nothing; but the state steadily adds to its corporate wealth in the shape of physical plant devoted to public services at the cost of and for the benefit of all.

Private capital to the amount of approximately $120,000,000 has flowed into Porto Rico at first to modernize and to commercialize agriculture, and more recently to promote manufacture. Cane and tobacco growing were the first to feel this stimulus. Corporations financed upon the mainland bought plantations, built sugar *centrals*, railroads, and tobacco factories, and introduced improved methods of cultivation. The extent of such investments, however, is limited by the amount of land suitable for commercial agriculture and the time is approaching, if it has not already been reached, when the inflow of money for these purposes will largely cease. The agricultural industry that shows most promise of continued expansion is fruit growing, a business pioneered by continental Americans and still, for the most part, in their hands.

Mainland money has been invested primarily in the manufacturing end of even nominally agricultural enterprises, as in case of sugar and tobacco, where farm lands have been bought and cultivated to insure a supply of raw materials. Fruit growers have erected packing houses to prepare their pick for mainland markets and canneries to handle surplus and produce failing to meet certain shipping standards. Since the war, outside investment has been attracted to more strictly manufacturing undertakings, such as garment making, the manufacture of pearl buttons, diamond polishing, and cutting pivot jewels. American capital in Porto Rico has been increasingly an industrializing influence, and as such it may continue to find new fields of activity.

Sugar plantations, which employ relatively more skilled hands at higher rates of pay than any other branch of agriculture, have extended to approximately the limit set by the land available for cane growing. The recent remarkable increase in the per-acre tonnage of this crop as a result of varietal selection, has added to the proportion of harvesters, transportation employees, and mill hands, who are better paid than ordinary field laborers upon plantation pay rolls. Commercial fruit orchards, packing houses, and canneries, which also pay higher wages than the older forms of farming, date from after the American occupation. Tobacco growing, which has had a vicissitudinous history—as it has on the continent—on account of the highly speculative character of its market, has brought new forms of employment to the Island.

The extension of public and plantation railways, the arrival of the automobile, the mechanization of agriculture, the larger use of electric light and power, and the growth of general manufactures have widened the field of employment for skilled and semi-skilled male labor, while new industries have opened opportunities that previously did not exist for women to add to the family income.

Although the influx of capital, especially when controlled by distant corporations, has certain disturbing economic and social effects, it has afforded new forms of employment, increased the Island's aggregate output, and emancipated industry from sole dependence upon local raw materials. An idea of the diversion of productive energy to new channels that has resulted may be gained from the change that has occurred under American rule in the character of Porto Rico's exports. Measured by values, fully three-fourths of the domestic produce shipped in 1894 and 1895 left its shores in unmanufactured forms, and practically all the remainder consisted of raw sugar, molasses, and distilled spirits. Contrasted with this, in 1927 and 1928 local manufactures, including raw sugar, molasses, distilled spirits, cigars and cigarettes, constituted two-thirds of the total exports. Garments and other articles made of cotton and linen here form an item exceeding 15 million dollars, or more than double the value of the coffee exported when that crop was still important. In fact, the net value added by manufacture to these products, after deducting the cost of imported materials, was probably greater than the total returns from the coffee crop.

Apparently, therefore, such economic betterment of the working classes as has accompanied Porto Rico's political association with the United States is due to the increased production resulting from more adequately capitalized industry, to the larger volume and accelerated rhythm of exchange that attend the commercialization of agriculture, and to the diversification of occupations which has inevitably accompanied these two developments. Labor has drifted slowly but steadily toward newer and relatively better remunerated forms of employment. While the population has grown by more than half during the past 30 years, the number engaged in agriculture has increased only 25 per cent, and coffee planting, which is the industry paying the lowest and most nearly stationary wages of any in the Island, has declined.

It might normally be assumed that such inflow of outside capital as has come to Porto Rico would be accompanied by full employment and steadily rising standards of living. That such has not been the case, at least in any marked degree, is primarily to be attributed to the rapid growth of population in the Island. The population of Porto Rico in 1899 was 953,243, and in 1928 it was 1,454,000, an increase of 53 per cent. The population is now 396 per square mile, which figure may be compared with 43 for the mainland United States, 141 for the State of Ohio, 330 for Germany, and 412 for Japan.

This rapid growth is the combined result of an increased birth rate and a decreased death rate. The birth rate is almost twice that of the United States as a whole, and is steadily increasing. The death rate, on the other hand, has fallen from an annual average of 29.6 per thousand during the last ten years of the Spanish régime to 22.4 per thousand since 1925. The following table shows the birth and death rates by five-year intervals since 1900:

Population Increase [a]

5-Year Averages	Births Per 1,000	Deaths Per 1,000	Net Increase
1900–04	28.99	26.39	2.60
1905–09	33.02	23.00	10.02
1910–14	36.57	21.75	14.82
1915–19	37.82	26.73	11.09
1920–24	38.33	21.70	16.63
1925–28	40.55	22.43	18.12

[a] From data supplied by Insular Bureau of Health.

The population growth here recorded has been extremely rapid even compared with the neighboring islands where racial, climatic, and economic conditions might be expected to produce an equal rate of increase. This is shown by the table below which compares Porto Rico with the British West Indies—excluding the Bahamas which embrace many inhabited reefs and islands:

Population Growth in Porto Rico and British West Indies

Items	Porto Rico		British West Indies [a]	
	1899	1928	1901	1928
Area—square miles	3,670	3,670	7,839	7,893
Population	953,243	1,454,000	1,523,807	1,828,735
Population per square mile	259.7	396.2	194.4	233.3
Percentage increase of density	......	52.6	....	20.1

[a] Aspinwall, Sir Algernon, C. M. G., C. B. E., *Handbook of the British West Indies*, 1929-30, p. 2.

The reason why Porto Rico's population has increased more than twice as fast as that of the British islands may be found in its relatively rapid economic development.[7] These figures compel us to conclude that under existing conditions the population multiplies to the subsistence limit as determined by the relatively low living standard of the tropics. In this respect Porto Rico is repeating the history of Java and Japan. Human reproduction keeps step with physical production.

So long as the population to be supported increases more rapidly than the means of subsistence, there can, of course, be no permanent improvement of Porto Rican living conditions. The enduring economic problem in Porto Rico, as elsewhere, is to determine and secure the best balance between resources and productive equipment on the one hand and the population to be supported on the other. In Porto Rico the best balance does not now exist, for population has outrun the capacity of the present economic resources and organization to furnish full employment and satisfactory living conditions.

This survey has been directed primarily to a study of the possibilities of a more effective utilization of the Island's material and human resources. We have studied in turn government organization and fiscal administration, public health and education, banking and credit, external trade and financial relations, commercial organization, and agricultural and manufacturing potentialities. The analysis has revealed many possibilities for bettering conditions, and some of our recommendations, if prosecuted vigorously, should in good season bring no small measure of relief. While no quick and complete solution of so difficult an economic problem as that which exists in Porto Rico is possible, it does happily appear that there are great possibilities of improvement through the development of certain types of manufacturing enterprise.

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[7] Compare Wood, Hon. E. F. L., M. P., *Report on a Visit to the West Indies and British Guiana*, pp. 47, 48.

In a survey of this character it is in the nature of the case impossible to make precise, detailed, prescriptions for the improvement of conditions in all phases of economic and social life. The primary task has necessarily been to discover the major sources of difficulty, to bring the various aspects of the problem into their proper relationships, and to indicate the lines along which a substantial improvement of conditions can alone be expected. To carry through successfully a program of reorganization and development will require numerous detailed studies which Insular and Federal government officials may well carry out; and also the reshaping of general policies from time to time in the light of changing conditions.

Many of the concrete recommendations made in this report require action either on the part of Federal or Insular government agencies—while others have to be carried out by private initiative. For convenience we present below a classified summary of the specific recommendations growing out of the survey, with references to the sections of the volume in which the pertinent discussion in each case is to be found. We would suggest also the desirability of reading in conjunction with this summary the final chapter of the volume which draws together the threads of the analysis as a whole and focuses attention upon the major lines along which the chief hope of progressive economic betterment lies.

RECOMMENDATIONS

A. RECOMMENDATIONS CALLING FOR ACTION BY CONGRESS:

I. Amendments to the Organic Act

a. Providing a legislature of one chamber;

b. Abolishing the present provision requiring Senate confirmation of appointments made by the Governor;

c. Redefining the functions of the Auditor, and providing that he shall be a deputy appointed by the Comptroller General of the United States;

d. Modifying budget procedure so that it will conform with present accepted budgetary practice, particularly with regard to the use of a single appropriation bill in financing expenditure needs;

e. To exempt or deduct the value of Insular bonds issued for municipal purposes from the calculation determining the debt limit of the Insular government. (See recommendation B-b.)

II. Special Congressional Statutes

a. Extending the drawback of duties upon raw materials subsequently exported in manufactured form, which is now granted to mainland manufacturers, to manufacturers in Porto Rico;

b. Repealing the futile 500-acre law applying to corporations engaged in agriculture;

c. Amending the revenue act of 1926 to permit the stamp tax on steamboat tickets to be turned into the Insular rather than the Federal treasury.

d. Extending to Porto Rico all Federal aid now extended to states, including the Smith-Hughes and George-Reed Acts for the promotion of vocational education; the Fess-Kenyon Act for the rehabilitation of persons disabled in industry; the Clarke-McNary Act relating to co-operative fire protection and co-operative farm forestry; the Smith-Lever Act relating to co-operative agricultural extension work; and the Federal Highway Acts for the co-operative construction of rural post roads.

III. Appropriations

a. For meeting financial requirements incident to the extension of Federal aid to Porto Rico, as suggested above;

b. To pay the salaries of public school teachers of English, or at least of those from the mainland.

c. For the extension of the crop-reporting service of the Department of Agriculture to Porto Rico.

B. RECOMMENDATIONS CALLING FOR ACTION BY THE INSULAR LEGISLATURE:

a. Such acts as are necessary to take advantage of Federal aid. (See recommendation A II d.);

b. Adoption of a law restricting the borrowing powers of municipalities to the securing of loans from the Insular government, such loans to be made only after the purposes to which they are to be devoted have been passed upon by the Commissioner of the Interior and the loans have been approved by the Insular legislature;

c. Revision of the municipal law so as to confine the jurisdiction of the present municipal governments to the urban areas of their respective municipalities, transferring the functions of the present municipal governments so far as they apply to the rural areas of the present municipalities to the Insular government, and to limit the functions of municipalities to strictly local affairs;

- d. The repeal of statutory exceptions to the competitive rule in original appointments to the Civil Service; and the inclusion in the merit system of all court employees;
- e. General revision of the law governing assessments, including provision for a permanent appointive board of tax appeals;
- f. Amendments to the existing tax laws, providing particularly for
  - (1) The collection of income taxes, derived from business enterprises at the source, with a view to preventing evasion by absentee owners.
  - (2) The imposition of a small surtax upon all income sent out of the country.
  - (3) The repeal of certain excise taxes producing a minimum of revenue with a maximum of trouble and expense;
  - (4) The repeal of certain taxes on special industries which have injurious economic effects;
  - (5) An increase of gasoline and automobile taxes to make the proceeds cover the cost of road maintenance;
  - (6) An adjustment of municipal taxes and fees that will make urban public utilities self-supporting;
  - (7) Special assessments for rural improvements; and
- g. Revision of property tax system to remove present restrictions on the allocation of proceeds;
- h. Provision for a cadastral survey of the Island;
- i. Appropriations and, if necessary, authorization for such new services of the existing Insular departments as are recommended in the following section.

C. Actions on the Initiative and Authority of Insular Officials:

a. Increased attention in the primary school curriculum to health habits, dietetics, home making, and community life;
b. Extension of vocational instruction as rapidly as industrial development promises to absorb the graduates;
c. Free distribution among school children and former pupils of a periodical, printed in both Spanish and English, concerned with current events and practical matters relating to health, diet, home making, etc.;
d. Advance preparation of plans for public works, in order of their urgency, that they may be undertaken without delay as relief measures;
e. Creation of a town planning commission, possibly consisting of engineers of the public works and health department and of representatives of the Homestead Commission;
f. Establishment of a crop statistics and marketing division in the present Department of Agriculture and Labor;
g. Encouragement of the provision of cold storage facilities and processing plants for local produce;
h. Extension of the statistical work of the present Labor Bureau or establishment of an Insular statistical office possibly under the Executive Secretary;
i. Creation of a Bureau of Commerce and Industry to promote the development of the Island.

D. Miscellaneous and General:

a. The exercise of greater restraint on the part of the Insular government in resorting to its borrowing powers;
b. A careful examination and report by the Auditor on all expenditures by the Insular government

with a view to eliminating "excessive, unnecessary, or irregular" expenses and outlays, as is provided for in the organic act;

c. Establishment of a tourist bureau and a historical monuments commission to advertise Porto Rico's scenic and other attractions;

d. Abolition of the clearing house agreement with respect to minimum interest rates; the payment of at least 3 per cent interest on savings accounts, and of 2 per cent interest on current accounts above a certain average minimum;

e. Extension of the postal savings system to additional localities, and the further development of the system in general by better compensation of postmasters for the work involved;

f. Promotion of saving and the development of local capital by the provision of more and better investment banking facilities;

g. Establishment of certain types of manufacturing enterprise which can utilize Porto Rican labor for the production of commodities to be sold in protected mainland markets;

h. The provision of fellowships for study in mainland institutions, particularly along lines of business administration.

RECOMMENDATIONS SUMMARIZED

AS TO SUBJECT	AGENCY BY WHICH ACTION IS REQUIRED	FOR DISCUSSION SEE
Education:		
Contribution to English instruction	Federal Government	Chap. IV, p. 90
Expansion of program of vocational training	Insular Government	Chap. IV, pp. 90-92
Extension of Smith-Hughes and George-Reed Acts to the Island	Federal and Insular Governments	Chap. IV, pp. 90-92

Free circulation of educational periodical, in Spanish and English	Insular Department of Education	Chap. IV, p. 82
Increased instruction in public schools in health habits, diet, home making, and civic and community life	Insular Department of Education	Chap. IV, pp. 82-83
Provision of fellowships for study in mainland institutions	Private agencies	Chap. XIX, p. 530
Health:		
Extension of Fess-Kenyon Act to the Island	Federal and Insular Governments	Chap. V, p. 107
Improving health and dietary instruction in public schools	Departments of Education and Health	Chap. IV, pp. 82-83
Government Organization:		
Legislature of one chamber	Federal Government	Chap. V, pp. 108-9
Abolition of Senate confirmation of appointments by Governor	Federal Government	Chap. V, p. 110
Redefining functions and method of appointment of auditor	Federal Government	Chap. V, pp. 111-14
Modernizing budget procedure	Federal Government	Chap. X, pp. 289-91
Readjustment of jurisdiction and functions of municipal governments	Insular Government	Chap. V, pp. 138-44

Extension of the Merit System	Insular Government	Chap. XII, p. 340
Revision of law governing assessments	Insular Government	Chap. VII, pp. 194-200
Fiscal Administration:		
Collection of income taxes derived from business at the source	Insular Government	Chap. VII, pp. 210-11
Imposition of a small surtax on income sent out of the country	Insular Government	Chap. VII, p. 217
Revision of present system of allocating tax proceeds	Insular Government	Chap. IX, pp. 284-87
Modification of borrowing powers of municipalities	Insular Government	Chap. XI, p. 327
Report on elimination of unnecessary expenditures	Auditor	Chap. X, p. 298
Transfer of proceeds of steamboat tickets' tax to Insular Treasury	Federal Government	Chap. V, p. 108
Repeal of certain excise taxes	Insular Government	Chap. VII, pp. 231-32
Repeal of certain taxes on special industries	Insular Government	Chap. VII, pp. 238-39
Increase of gasoline and automobile taxes	Insular Government	Chap. VII, p. 251
Adjustment of municipal taxes and fees	Insular Government	Chap. VII, pp. 238-39

Special assessment for road improvements	Insular Government	Chap. IX, pp. 282-87
Extension of drawback of duties to Porto Rican manufacturers	Federal Government	Chap. XVII, pp. 475-76
Public Works:		
Pre-planning emergency construction as relief measures	Insular Government	Chap. XIII, p. 349
Additional provision for road maintenance	Insular Government	Chap. VII, pp. 241-51
Finance:		
Abolition of clearing house agreement on loan rates	Clearing House Association and banks	Chap. XIV, pp. 390-3
Payment of at least 3 per cent interest on savings accounts	Clearing House Association and banks	Chap. XIV, p. 391
Payment of 2 per cent interest on current deposits	Clearing House Association and banks	Chap. XIV, p. 391
Extension of Postal Savings system	Federal Government	Chap. XIV, p. 380
Provision of more investment banking facilities	Private agencies	Chap. XIV, p. 380
Trade and Manufactures:		
Establishment of a free port	Federal Government	Chap. XVI, p. 442

Extension of drawback of duties on raw materials to Porto Rican manufactures	Federal Government	Chap. XVII, pp. 475-76
Establishment of Bureau of Commerce and Industry	Insular Government	Chap. XVII, p. 476
Establishment of a tourist bureau	Insular Government	Chap. XIX, pp. 524-25
Repeal of certain special taxes	Insular Government	Chap. VII, pp. 238-39
Agriculture:		
Abolition of the 500-acre law	Federal Government	Chap. XIX, p. 526
Extension of Smith-Lever and Clarke-McNary Acts to the Island	Federal Government	Chap. V, pp. 107-8
Extension of crop reporting service to Porto Rico	Federal and Insular Governments	Chap. XVIII, p. 513
Establishment of market news service similar to that of mainland	Federal and Insular Governments	Chap. XVIII, p. 514
Development of cold storage facilities and processing plants for local produce	Private co-operatives and Insular Government	Chap. XVIII, p. 508

Coast Cabin and Coconut Palms

PORTO RICO AND ITS PROBLEMS

CHAPTER I

THE ISLAND AND ITS RESOURCES

Although Porto Rico was discovered by Columbus and has been continuously settled by Europeans for more than four centuries, some details of its geography and physiography are still incompletely known and others have been but recently ascertained. The Island's area has not been precisely determined, and its highest mountain peak was not identified until within the last few years. A Scientific Survey of Porto Rico and the Virgin Islands made under the auspices of the New York Academy of Sciences, the full records of which have not yet been published, is the most authoritative contribution to our knowledge of the topography and geology of the Island, and incidentally of its natural resources, that we possess. From this we quote:

> Porto Rico, the smallest and easternmost of the Greater Antilles, averages 35 miles in width and 100 miles in length, presenting a regular rectangular outline three times as long as broad and alined nearly exactly east-west. Its shoreline is nearly straight and quite regular. The coast is usually low, with a few low promontories. The fringing keys and deep indentations characteristic of a more youthful stage in coastal development, and so abundantly developed on the Cuban coast, are entirely wanting. Its area is 3,670 square miles, just 500 square miles less than the area of Jamaica, or about three times that of Rhode Island.[1]

The Island lies about 1,400 miles southeast of New York, 1,000 miles east of Havana and northeast of the Panama Canal, and 500 miles north of Venezuela. Its strategic position at the eastern portal of the Caribbean area was early recognized by Spain, which made San Juan, the capital city, its second strongest fortress in the New World.

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[1] Semmes, D. R., "Geology of the San Juan District," *Scientific Survey of Porto Rico and the Virgin Islands*, Vol. I, Part 1, p. 37.

Approached by sea from almost any direction, Porto Rico offers an attractive panorama of mountain background—verdure clad to the summit for the greater part of the Island's circumference, which rises rapidly from a highly cultivated coastal plain and is broken here and there by the indentations of considerable river valleys. To quote again from the authority just cited:

> The most characteristic topographic feature of Porto Rico is its complex mountainous aspect. That portion of the Island that rises above sea level is merely the eroded crest of a submerged mountain range of great complexity and magnitude. This eroded crest rises steeply from the sea to an average altitude of 2,500 feet along the divide. Owing to difference in rainfall on the northern and southern sides, the divide has been pushed to the south by the encroachment of the larger northern streams until it now stands two-thirds of the way toward the southern coast.[2]

A few higher peaks top the central sierra, of which the most conspicuous is El Yunque (the anvil), 3,532 feet in altitude, at the northeastern corner of the Island. While higher summits exist in the interior, culminating in Pico de Jayuya, near the center of the Island, which rises 4,398 feet above sea level, they are less prominent on account of the rugged ranges and plateaus that surround them.

This mountain axis lies athwart the path of the northeastern trade winds, which blow almost constantly except during the late summer and early autumn months, when they become intermittent, and which bear a steady burden of moisture to its northern slopes. The average annual rainfall for the entire Island is 71 inches, but the amount varies greatly from year to year and in geographical distribution, ranging from 64 to 94 inches in different seasons and from 21 inches in the drier sections of the southern coast to 169 inches in years of heavy precipitation on some of the higher mountains. Porto Rico's prevailing winds, moderate size, and oceanic situation give it a warm, equable, and comfortable climate. The mean annual temperature of the Island is 76 degrees, the average for the coldest winter month being 73 degrees and for the warmest summer month 79 degrees. These figures vary somewhat with elevation and other topographical conditions, the average annual temperature on the coast ranging from 75 degrees in January to 81 degrees in August, and in the mountains from 69 degrees in January to 75 degrees in August.

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[2] *Ibid.*, p. 38.

Originally Porto Rico was densely wooded and probably was abundantly watered throughout nearly all its coastal area. Today almost none of the original timber exists, and were it not for the shaded coffee plantations that clothe many of the mountain sides, the citrus fruit orchards extending through the foothill country in either direction from San Juan, the coconut groves that fringe the sandy beaches and the quick growing shrubs and the trees that border the highways and cluster around the cabins of the peasants, the country would present a sadly denuded aspect. In fact, many of the southern mountain slopes, which receive a minimum amount of moisture, have been converted into arid waste lands which contribute nothing to the economic welfare of the country. Moreover, a considerable portion of the low plain along the southern coast of the Island and a section near the northwest corner are too dry to raise trees or crops successfully except under irrigation.

Porto Rico's flora and fauna have been profoundly modified by immigration and do not vary widely from those of the other West Indian islands. Few venomous reptiles or insects and no dangerous mammals exist. In fact, the densely populated Island is thoroughly "humanized" in these respects, presenting much the same conditions as are found in the older Mediterranean countries.

While water for power and irrigation is fairly abundant, its control and utilization present problems peculiar to the tropics. The average annual rainfall over the upland portion of the Island is more than twice that in the vicinity of New York, and it comes in short, sharp showers, none of which may last more than ten or twelve minutes, but which in the aggregate may amount to four or five inches, or even double that, within 24 hours. The impervious character of the soils causes a rapid run-off and an accumulation of water in all the little pockets and irregularities of the surface, so that mountain streams may rise suddenly from 15 to 20 feet after heavy showers, and people, animals, and ox carts are sometimes swept downstream, and travelers are drowned while attempting to cross fords that were but ankle deep a few minutes before.

Porto Rico, as is well known, lies in the path of the West Indian hurricanes and every quarter century or so suffers serious disaster from these storms; but the violent cyclones of our Western States are unknown. The Island is also subject to occasional earthquakes. Neither hurricanes nor earthquakes—so far as present experience goes—present insurmountable structural problems to the modern engineer, though they add to the original cost of buildings and all permanent public works. But crop damage by storms is among the Island's permanent risks.

Flooded Cane Lands

While Porto Rico is not absolutely destitute of mineral resources and both gold and copper have been obtained in small quantities, it has no known stores of coal or oil. Nor are the industrial or precious metals present in sufficiently concentrated form to justify commercial working. In a word, its natural resources so far as present knowledge goes are almost entirely agricultural.

No comprehensive survey of Porto Rican soils has ever been made. Notwithstanding the disappearance of the original forest mantle and the heavy rainfall, the country is less denuded of its original soil covering than might be expected. Three factors account for this.

One is the clinging character of some of the vegetation which tends to bind the soil together; another is the small range of temperature variation which reduces disintegration or disruption tendencies to a minimum; and still another is the low content of inert or refractory materials, such as quartz, in the rocks whose destruction has furnished the soils; all of which factors favor the making of a specially tenacious soil.[3]

The economic value of this soil in the higher mountain country is limited. In discussing that found in areas which afford some promise of reforestation, a recent writer says:

> The soil on the hill and mountain slopes which comprises practically the entire amount of forest land in Porto Rico has, under the influence of constant warm weather and abundant rainfall, been leached out of the original nutrient constituents and the humus content excessively decomposed or completely washed away. Furthermore, the forest land occurs coincident with the "old land series" of geologic formation, which is of volcanic origin, and it is highly questionable if such soils on sloping areas, exposed to tropical conditions of climate, retain for any length of time the composition of the original basaltic lava. Rocks and soils from this source decompose with tremendous rapidity in tropical regions and, as a result, the so-called clay soils of Porto Rico are only mechanical in analysis, not in composition. They are very low in silicates and high in their content of iron and aluminum hydrates, and are referred to as laterite soils. These red clay-like soils, extremely heavy and that pack and puddle badly even to the extent of being impervious to air and water, which are formed from lava, decomposed through the action of periods of drought and tropical downpours, are those upon which Porto Rico must depend for the re-establishment of her forests.[4]

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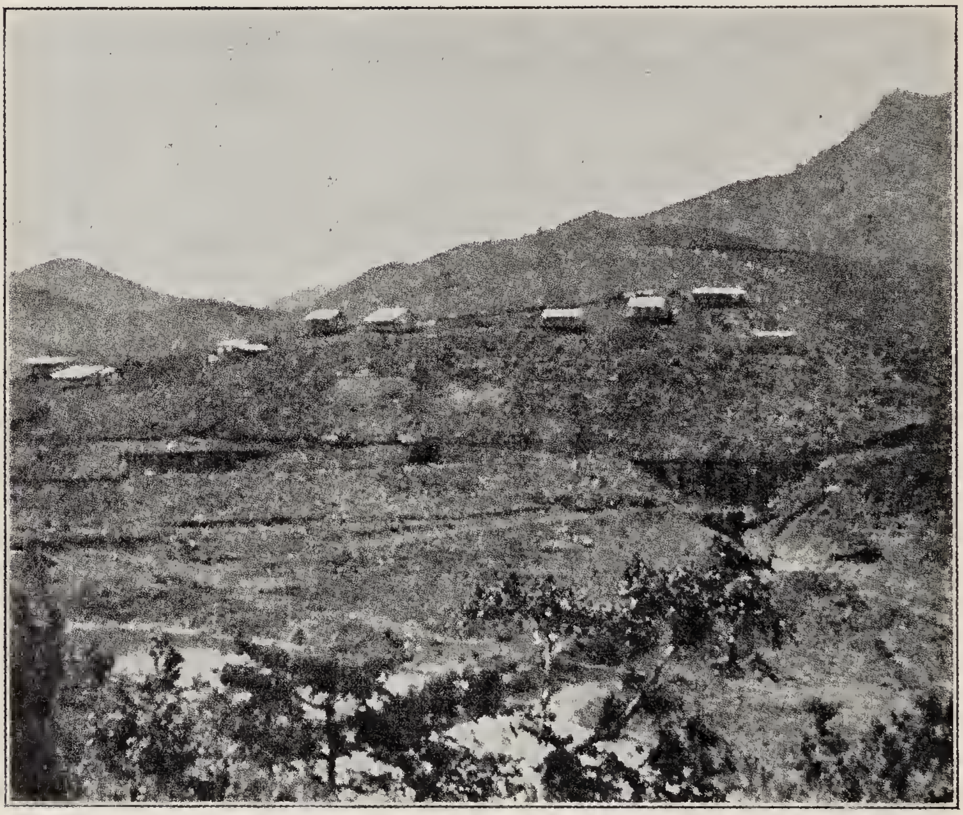
[3] Berkey, C. P., "Geological Reconnaissance of Porto Rico," quoted in *Scientific Survey of Porto Rico and the Virgin Islands*, Vol. I, Part 4, p. 34.

[4] Durland, William D:, "Forest Regeneration in Porto Rico," *Economic Geography*, Vol. V, No. 4, p. 373, October, 1929.

These conditions, combined with the rugged topography, explain why Porto Rico, although one of the most densely populated agricultural countries in the world, with nearly 400 people trying to draw subsistence from every square mile of area, has so small a percentage of its land under cultivation. Of approximately 2,349,000 acres, some 1,300,000 were reported by the last decennial census to be improved, and only about one-half of the latter, or 660,000 acres, were in harvested crops, including coffee, coconuts, and fruits.[5]



Hull Photo

TYPICAL VALLEY AND FOOTHILL COUNTRY

The best of this land has been cultivated for centuries, without much effort to maintain its fertility. Only recently have scientific methods of tillage and of soil maintenance and restoration been adopted on a scale large enough to affect materially agricultural production.

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[5] Fourteenth Census Bulletin, *Agriculture, Porto Rico,* Tables 1 and 26.

Most of Porto Rico's highly productive soils lie in the coastal plain, and vary regionally in fertility and general character. Extending in either direction from San Juan, as far as Fajardo on the east and Toa Baja on the west, is a belt of acid clay planted almost exclusively in sugar cane and, where it merges into a sandy coast belt, in citrus fruits. On the eastern coast south of Fajardo, and up the valleys that open westward from the sea, the soil ranges from clay to sandy-clay, and when well watered bears abundant crops of cane. West of Toa Baja limestone makes its appearance, becoming prominent at Arecibo, and continuing to Rincon beyond the northwestern corner of the Island. Near Aguadilla, in a district which suffers at times from deficient rainfall, the amount of calcium carbonate is so great in spots that the land is whitish and unproductive. Incidentally, this is a district of low wages and exceptional poverty, even for Porto Rico. On the other hand, at the opposite end of a line drawn diagonally across the Island from this point, in the eastern half of the southern coast plain, are some of the most productive cane lands in the country. They owe their richness to the fact that their fertility has not been washed out by heavy rainfall; but they require irrigation. These clay and sandy-clay soils, with their high humus content, continue nearly to Ponce, the principal city on the southern coast, where lime again appears. West of this the soil is somewhat leaner, but nevertheless bears abundant cane crops.

Some of the best lands of Porto Rico, from the standpoint of general fertility and humus content, are in the black soil country of the interior and are generally planted in tobacco. Farther west, in the highlands north and west of Adjuntas, a pinkish clay is found on the humid mountain sides and saddles, verging to brown with its increasing humus content in pockets and on lower slopes. This is ideal coffee soil, and in the days when that crop was the economic mainstay of the Island, these lands were rated among the most valuable in the country.

In general, Porto Rico's soils are poor in nitrogen and phosphoric acid, and many of them are likewise deficient in potash and lime. Consequently, artificial fertilizers are needed as a rule to grow remunerative crops, a fact which helps to make commercial agriculture the only form of farming generally profitable in the Island.

Nearly one and one-half million people live in Porto Rico, of whom all but a minute minority were born in the Island and are descended from ancestors who have lived there for centuries. The only numerically important additions to this stock since the early Spanish migrations of the sixteenth and seventeenth centuries were African slaves. These and an indeterminate Indian element, which was absorbed during the first years of settlement, but has probably contributed a trace of blood to a constantly widening circle of descendants, have blended with the original Iberian colonists until it is impossible to draw an exact line between white and colored. A pure negro type is encountered in the port towns and the former slave plantation districts on the coast, while peasants as fair as north Europeans are not infrequently met upon the mountain trails of the interior. As a rule the propertied and professional classes are white, while the laboring classes, exclusive of the peasant mountaineers, are in varying degrees colored. Soldiers and other temporary sojourners have constantly diluted the African blood of the coast towns since the cessation of the slave trade, and merchants, planters, and civil servants from Spain, and occasionally political refugees from Latin America, have recruited the commercial and official classes. According to the census, in 1920 approximately 73 per cent of the population was white and 27 per cent colored, but this is hardly more than a statistical guess.

Race lines are not as strictly drawn in Porto Rico as on the mainland. Intelligent, educated, and forceful colored men and women are found in all walks of life, where they associate without apparent discrimination with whites. Negroes are numerous in the teaching profession, and colored pupils attend on terms of equality public schools and higher educational institutions. An advertisement inserted in an Island paper by a Porto Rican automobile mechanic, residing in an up-state city in New York, for a wife who among other qualifications must be either white or mulatto, illustrates a race attitude of the common people.

Nevertheless, race is a potent sociological force in Porto Rico. African slavery drove the poor whites into the mountains, as it did in our Southern States, where isolation and absence of cultural and economic opportunities perpetuated or created a special type, the mountain peasant or "jibaro," of whom we shall hear abundantly in the following pages. He presents some parallels with the cabin dwellers of the southern Appalachians, but today is succumbing to the influence of good roads, public schools, and commercial agriculture. As yet, however, his economic status is depressed below a normal subsistence level. Generations of civic and spiritual neglect have given him some of the primitive mores of the indigenees. His family ties are often merely consensual, and his children therefore technically illegitimate; but he is not immoral in an anti-social sense.

Among the floating laborers of the coast towns and lowland plantations survivals of slave mores still persist. Family ties, even when normally more formal than in the mountains, are apparently less binding, and result in the type of illegitimacy that is accompanied by a high infant mortality. Both the birth rate and the death rate of the colored Porto Ricans, who are relatively more numerous on the coast than elsewhere in the Island, exceed those of the whites. The causes for the high mortality appear to be social and economic rather than physiological. In fact, it is hard to escape the inference, unverifiable though it may be until more research than hitherto has been devoted to the subject, that whites suffer a climatic handicap, at least as compared with full-blooded blacks, throughout the West Indies.

Porto Rico's population is essentially rural. Many of the so-called towns are little more than village cross roads that owe their petty dignity to the political system introduced by Spain rather than to economic reasons. Even including these little places, several of which have only 600 or 700 inhabitants, but 27 per cent of the population is classed as urban.[6] San Juan, the largest city in the Island, has less than 100,000 population, and Ponce, the second town in size, has less than 46,000. Under 200,000 of the estimated population of 1,454,000 live in towns of more than 10,000 people.

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[6] Commissioner of Health of Porto Rico, *Report*, 1927-28, Vital Statistics, Table 5.

Nevertheless, there is more community life in Porto Rico than at the time of the American occupation. The paved road is the Great White Way of the Porto Rican countryman. Miles of almost continuous village have sprung up along the borders of these thoroughfares. The latter are thronged all day and part of the night with pedestrians, horseback riders, and above all automobile and bus travelers. In spite of the prevailing poverty, therefore, the travelled roads of Porto Rico present a cheerful and lively aspect compared with the relatively deserted highways in many Caribbean countries. To be sure, these channels of traffic and social change have not penetrated to isolated sections of the Island. Even from the speeding automobile the passenger can at places look across line after line of mountain ridges dotted with peasant cabins that are accessible only by devious and precipitous trails. But these areas, though some of them may survive almost untouched by modern life for more than a generation to come, are obviously remnants of the past. Therefore, in dividing the population into urban and rural, account must be taken of the rapid extension of communal life along the Island's steadily spreading network of improved roads.

The educated classes of the Island have a Latin cultural background. The masses speak Spanish or a Spanish patois, and most of their cultural traditions are derived from Spain. Yet, these are only partly Latin in race and their manners and mental habits have been modified by centuries of primitive environment and more recently by 30 years of contact with North Americans. The working classes certainly look forward to a North American rather than to a European or a Latin American future, because for them the mainland represents high wages and other economic opportunities and relatively progressive labor policies. The ties of organized labor are entirely with the States.

Illiteracy has been reduced by perhaps one-half since the time of the American occupation. One-tenth or more of the people have sufficient knowledge of English for ordinary practical use.[7] So far as economic aptitudes are concerned Porto Ricans have given evidence of ranking well. While it is true that they do not possess the physical robustness of the pure negro stock of Jamaica, Haiti, or the British West Indies, they have proved to be patient and fairly efficient plantation laborers in Porto Rico. The best of those transported to Hawaii 27 years ago rather more than held their own with the Orientals and were considered as good field hands as those of Portuguese and Spanish blood. Not only have the men shown their competency to meet the newer industrialism by becoming intelligent mechanics and the women by becoming efficient factory operatives, but in all the advancing phases of Porto Rican life—engineering, law, medicine, education, and management—the Porto Rican has shown no lack of innate quality. Young Porto Ricans who have come to American universities have shown themselves to be fully equal to Orientals and other students from foreign lands. Thousands of Porto Ricans who have emigrated to the United States have demonstrated their ability to adjust themselves to the economic life and culture of the mainland. In a word, there is every reason to assume that Porto Ricans have sufficient native capacity to maintain a much higher standard of living than they enjoy at present.

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[7] "This was the figure in 1925, and there is at the present time an even larger percentage of young persons who have certain command of the English language. The number may easily exceed 150,000."—Columbia University, *Survey of the Public Educational System of Porto Rico*, p. 66.

CHAPTER II

WORKERS IN COUNTRY AND IN TOWN

The conditions of life of the great mass of the working population are necessarily a fundamental consideration in a survey of any social group. While the money wages received are perhaps of first importance, there surround the worker in every country, and particularly in one such as Porto Rico, which has not felt the full influences of modern industrial and commercial civilization, a number of other factors which must be examined to gain any adequate picture of everyday life. Housing conditions, degree of population congestion, continuity of employment, opportunities for supplementing the income of the chief family wage earner are among the matters of great consequence in the totality of the workers' existence.

A satisfactory investigation of living conditions is difficult enough even in countries where for many years there has been a careful compilation of statistical data bearing on such questions. It is doubly difficult in an Island like Porto Rico where wage and price statistics are relatively limited. In dealing with these matters in this chapter, therefore, it has been necessary, while placing as much reliance as possible on statistics already compiled, to supplement these with first hand investigations. In part this has been done by means of questionnaires, and in part by the examination of original records. At times personal observation has proved the most effective technique of research.

Only about one person in four in Porto Rico lives in a town or a village, and hardly one person in fifteen resides in a place so large that he cannot go conveniently from his home to his work on some neighboring farm or plantation. Yet urban life is sufficiently developed to make it seem desirable to divide this description of the life of the worker into two sections dealing respectively with the rural laborer and the worker in the town.

I. RURAL LIVING CONDITIONS

Any description of the economic and social problems of rural Porto Rico must begin with the fact that the Island is not a farming community in the North American sense of the word, but, instead, a community of agricultural laborers. A great majority of the country people are tenants-at-will, dependent upon wages for their livelihood. They own neither the land that they till nor the crops that they raise. The fact that nearly four out of five of those living in the country are landless, presumably own no home, possess few or no animals, and none but the most primitive agricultural implements —if any whatsoever—lies at the root of the structure of the rural community. It is a country where the masses depend for their right for a place to live, to raise a garden or to keep a cow, a pig, a goat, or a chicken upon the good will of the landowner upon whose property the little single-partitioned hut happens to be built.

To understand the important elements in the life of these laborers it is necessary to be aware of the general plan of agricultural organization. Most important is the fact that the typical agricultural unit is the commercial plantation which produces one or more of the great staple crops—sugar, tobacco, or coffee. These plantations produce for the outside market, and each employs a large number of wage workers. The North American type of agricultural organization, managed either by a landowner or tenant, has less significance than it has in the United States, though the small farms which are the source of some cane, coffee and tobacco, and of most of the fresh fruits or vegetables consumed in the cities of the Island altogether furnish employment to a very considerable number, both of owners and of wage workers. The census of 1920 reported 20,000 farms of less than 20 acres each, and listed 52,000 "general farm" laborers. Laborers in the three great export industries, most of whom are employed on commercial plantations, are nearly three times as numerous, making up more than 73 per cent of all agricultural laborers.

The table below shows the distribution of agricultural laborers among the various types of agricultural enterprise:

AGRICULTURAL LABORERS, BY TYPE OF CROP RAISED, 1919[1]

Crop	Number	*Percentage Distribution*
Sugar	79,261	*40.1*
Coffee	37,776	*19.1*
Tobacco	28,118	*14.2*
General	52,642	*26.6*
Total	197,797	*100.0*

While the agricultural laborer is chiefly dependent on wages, some additional income is obtained from proceeds of share-cropping, especially on tobacco plantations, and a very small amount of livestock is raised. There is some work on roads and other public enterprises, and in the western and central parts of the Island there is employment for women at needle trades. Some plantations, especially in coffee, distribute a limited amount of free food, but the wages paid by the three basic industries and by a small but growing number of fruit plantations, and the living quarters available on these plantations, constitute the main support of the rural standard of living. It is important, therefore, to give a clear picture of the wage and employment conditions and of the tenure of homes in the commercial plantation areas.

Home Ownership and Home Tenure. No complete survey of home ownership among the Porto Rican peasantry has ever been made. In 1924-25, however, the Insular Department of Agriculture and Labor made an investigation that covered by sample 628 rural wards in ten municipalities representing all sections of the country, in which it secured data from 3,622 landowners and 9,455 families of resident laborers, or *agregados,* as they are called locally. Of the latter group, 82.2 per cent lived in dwellings belonging to landowners for which they paid no rent; 17.6 per cent owned their dwellings (but not the sites); and a fraction of 1 per cent resided in rented houses.[2] In most cases, therefore, the agricultural laborer has no rent to pay. He also has no rights of occupancy except at the will of the landowner, and is ever faced with the possibility of forced removal.

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[1] Data from Census of Occupations of 1920.

[2] Governor's *Report,* 1925, p. 638.

The agricultural laborer who owns his house is in a slightly better condition. It is doubtful, however, whether ownership of the hut alone really gives any greater right to occupancy. Although no land rental is exacted, obligation to work on the plantation in times of need ordinarily is stipulated, just as with the *jíbaro* who occupies a shack which he does not own. If the landlord wishes to do so, he can eject a resident laborer who owns his own hut. In that case the laborer has the alternatives of dismantling the hut and carting the materials away, of selling out to the owner, or of abandoning his property. The actual practice in cases of forced removal varies with the conditions under which the ejection occurs. Charges have been made that landowners have permitted their workers to construct huts in order that they may acquire them later on terms favorable to themselves.[3]

Rural Housing. Broadly speaking, three types of rural houses are occupied by laborers, namely, thatched huts, board cabins with galvanized iron roofs, and long tenements of frame construction. Tradition says that the Porto Rican *bohío*, or palm hut, perpetuates the type of Indian dwelling that the Spaniards found on the Island. Indeed, even the masters' houses on the British West Indian plantations are described as recently as the latter half of the eighteenth century as oftentimes "miserable, thatched hovels, hastily put together with wattles and plaster, damp, unwholesome, and infested with every species of vermin." [4]

The commonest type of Porto Rican laborer's house today is a framework of poles or scantling, nailed or tied with native fiber. The walls may be of boards, thatch, or the bark of the royal palm, and the roof is of thatch, bark, or galvanized iron. The floors are made of boards and generally raised a few feet from the ground. Such a hut most frequently stands on the side of a hill, and the raised flooring permits the water from the torrential rains to pass down the hillside, carrying what litter may have accumulated beneath and leaving the habitation dry. It is from ten to twenty feet square, and is frequently, though not always, partly partitioned with boards or bark. It has no ceiling. It has no kitchen, except a lean-to on the outside, without flooring and partly open to the weather, and containing a few stones thrown together for a stove. On the inside its walls are rough, uneven, and unpainted. Its decorations, when it has them, consist of pictures cut from newspapers, almanacs, and advertisements. When new, this hut is sufficient protection from the heat and rain, but within a very few years the roof and walls deteriorate, and unless it is kept constantly in repair, the torrential rains and strong winds break through the light construction and make it an uncomfortable and unhealthful place of residence.

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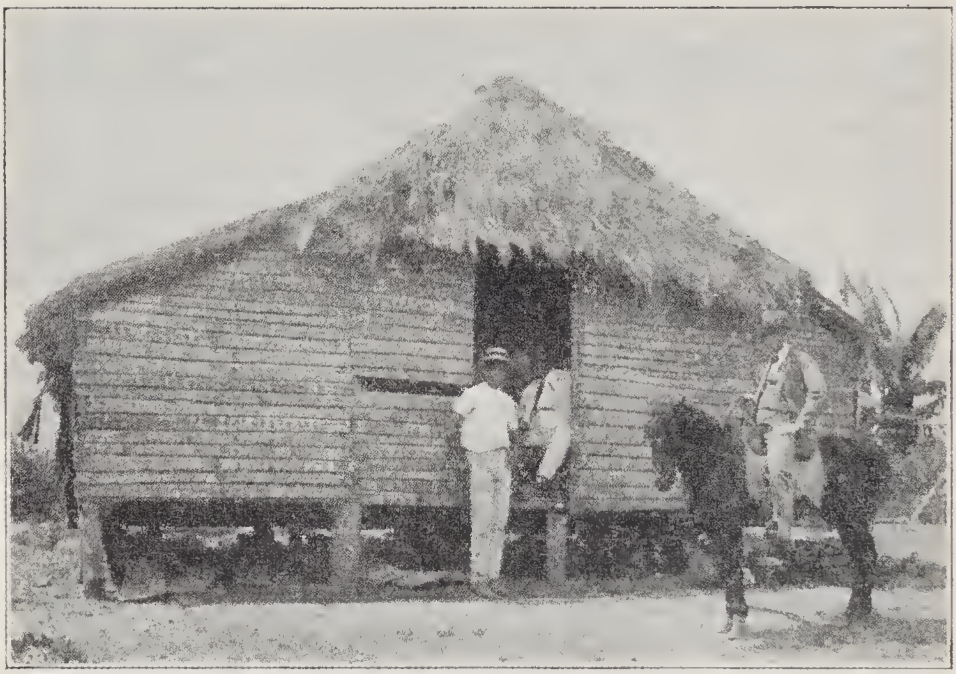
[3] So strong is the feeling that the house built by the worker may, and not infrequently does, revert to the landowner, that in the large scale building of residences for the rural population after the hurricane, the Red Cross made every effort to build homes only for those workers who could find sites that were not located upon private plantations—many, in fact, were constructed upon the public highways. Where houses were built upon privately owned land, attempts were made to secure some pledge of permanency for the laborers for whom the houses were intended.

[4] Long, Edward, *History of Jamaica* (1774), II, 21-22, quoted in Ragatz, L. J., *The Fall of the Planter Class in the British Caribbean, 1763-1833*, p. 5.



Country Cabin

The thatched huts, whether belonging to landowners or to resident laborers, are usually constructed by the latter out of what they can pick up in the neighborhood. The same is true in the vicinity of the towns. Here stray pieces of board, boxing, and old tin cans and strips of iron are used instead of thatch. Some of the walls of these huts give the impression of a crazy quilt, with their patches of straightened oil cans, odd pieces of bark and board, and ancient strips of zinc.

In addition to these cabins there is the newer, better constructed, and occasionally painted plantation laborer's house of frame, with galvanized iron roof and enclosed kitchen. Many of these are arranged in camps and are built and owned by the large plantations.[5]

The choice between these types of construction depends largely upon the ease with which lumber and galvanized iron can be transported to a building site, and on the local supply of thatch and palm bark. With the improvement of transportation and the steady depletion of local timber, the former tend to supplant the latter. Thatched cabins, with palm bark siding and board floors, are perhaps to be preferred to those built of imported materials, especially in the dryer and hotter parts of the Island, but cane tops and similar perishable coverings, which continue abundant and are used relatively more as other native supplies grow less, make an inferior dwelling.

In addition to the types of houses just described, barrack-like tenements are still to be found. They are long stable-like, one-floor structures, containing 20 or 30 rooms completely separated from each other, each with an outside door. They are more commonly found on the sugar plantations or in the poorer quarters of the towns. They permit a degree of crowding and proximity which is altogether undesirable.

During the cane-cutting season, which lasts several months, nonresident, single, agricultural laborers are employed and housed by the *central*. It has been a common practice to allow these men sleeping space in wooden structures, 50 or more in one long room, with little more space than is required for the hammocks.[6] This form of housing, however, is tending to disappear, and better facilities are being provided with more space, locker rooms, and some regard for cleanliness and health.[7]

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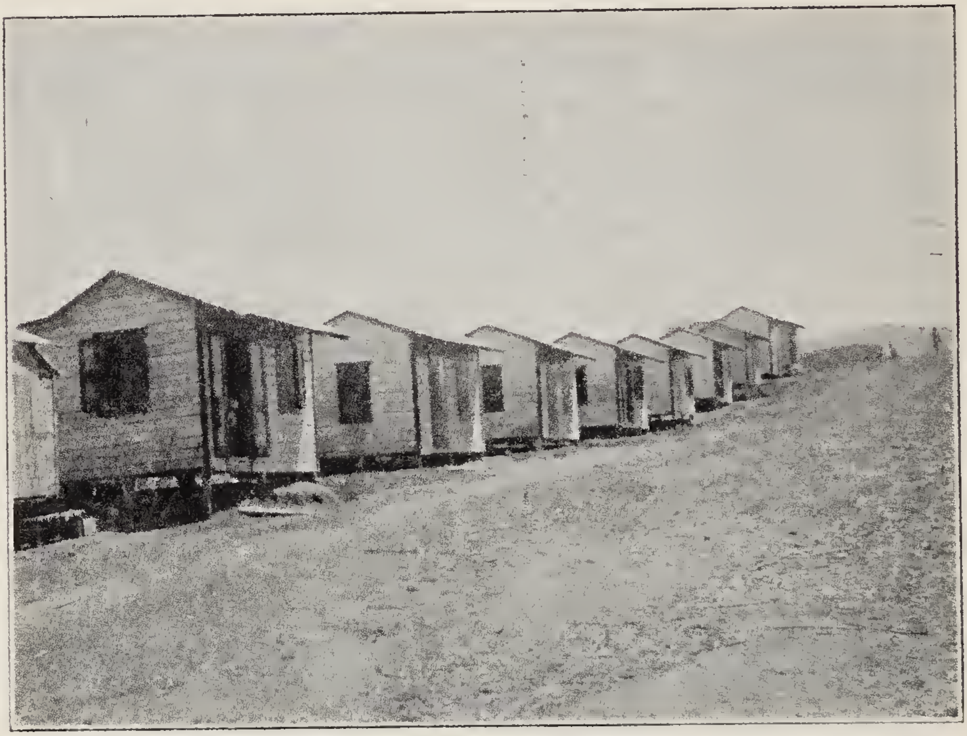
[5] As a result of the hurricane, many rural dwellings have been erected by the Red Cross, made of imported boards and covered with zinc. These are new and stand out in contrast with the rest of the rural dwellings. A visitor not knowing that these represent recent acquisitions on the part of some of the Porto Rican laborers, as a result of American charity, may mistake their significance in the broader rural economy.

[6] *Informe del Comisionado de Agricultura y Trabajo*, 1925-26, p. 38.

Many of the workers' houses are virtually devoid of furniture. The average *jíbaro's* home has no bed, no table, no chair, no mat, no carpet, no cupboard, no looking glass, no wash basin. It does have a hammock. That is the indispensable possession of every little hut along the way. Those who do not sleep in the hammock sleep on a rude canvas cot or on the floor.[8]



Field Laborers' Camp
(Sugar Plantation)

The house is fairly warm, even on the coldest days. Bed covering—what there is of it—is generally made from old sacks. For seating purposes there may be a box brought from the local grocery store, or an old oil can, or a round piece of log. Kitchen utensils are primitive and homemade, chiefly from gourds and from tin cans. A tin oil can serves as the water container. Sometimes the water is brought from a distance; sometimes it is collected from the roof on rainy days. Occasionally there is a home-made straining device.

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[7] Fleagle, Fred K., *Social Conditions in Porto Rico,* 1917, p. 49.

[8] Cots and locally manufactured woven wire beds of very simple construction, which are sold to laborers directly from the factory for two dollars, are coming into use among the more fortunately situated country workers and peasants. Compare also Appendix A, Section IV.

The chief foreign utensil used in the house is a large iron pot for cooking. Crockery and glassware are either entirely absent or very scanty, indeed. Conditions differ a little in this, as in other respects, depending upon the nearness to town and to good roads. The house, the household furniture, and the household utensils altogether are on the average probably not worth $75, and possibly considerably less.

Not only is the home of the average country laborer's family in Porto Rico of primitive construction and limited dimensions, but it is also exceedingly congested. A study of 4,268 houses included in an investigation made in connection with the present survey indicates that, regardless of their size, they shelter on an average more than seven people.[9] Presented in tabular form, the figures are as follows:

RURAL FAMILIES, ACCORDING TO NUMBER OF ROOMS PER DWELLING

Rooms per Dwelling	Dwellings		Persons		Average Number of Persons per Dwelling
	Number	*Percentage of Total*	Number	*Percentage of Total*	
1	458	*10.7*	3,260	*10.0*	7.1
2	2,021	*47.4*	14,973	*45.8*	7.4
3	753	*17.7*	5,964	*18.2*	7.9
4	560	*13.1*	4,422	*13.5*	7.9
5	246	*5.8*	2,002	*6.1*	8.1
6	129	*3.0*	1,195	*3.7*	9.3
7	58	*1.4*	511	*1.6*	8.8
8	25	*.6*	239	*.7*	9.6
9	13	*.3*	123	*.4*	9.5
Total	4,263	*100.0*	32,689	*100.0*	7.7

We observe that over half the rural population lives in one-room or two-room huts. The "two-room" merely means a single room with a partition wall of palm bark or boards that seldom extend high enough to afford real privacy or quiet. Less than 12 per cent of the families here listed live in houses of five or more rooms.

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[9] In this enumeration, when two or more families lived in a single building, the rooms occupied by each family were counted as one home.

A majority of the one-, two-, and three-room houses have more than eight people living in them. In fact, the size of the family remains about uniform, irrespective of the size of the home. More than 50 per cent of the single-room shacks house eight or more people, and in 4 per cent of the cases as many as 13 people occupy the hut. Extreme cases are reported of 16, 18, and 20 people to a one-room shack. Another way of indicating the congestion shown in these reports is to classify the data according to the number of persons per room. When the data are arranged in this way the showing is as follows:

Persons per Room	Number of People	Percentage of Total
Less than 1	342	1.0
1 to 2	4,805	14.7
2 to 3	7,458	22.8
3 to 4	6,833	20.9
4 to 5	5,603	17.1
5 to 6	3,176	9.7
6 to 7	1,674	5.1
7 to 8	950	2.9
8 to 9	561	1.7
9 to 10	441	1.3
10 to 11	390	1.2
11 to 12	242	0.7
12 to 13	96	0.3
13 to 14	91	0.3
14 or more	48	0.3
Total	32,710	100.0

To some extent these situations were presumably due to the shortage of shelter after the hurricane.[10] On the other hand one must bear in mind that the families studied were probably better off than the average of the rural population.

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[10] This survey represents conditions five or six months after the San Felipe hurricane. At the end of November, 1928, the Survey Commission, appointed by the Governor to investigate storm damages, reported as follows on the basis of an enumeration made two months after the hurricane:

"About 247,729 rooms in rural dwellings were totally destroyed, and 192,444 partially destroyed. By the date of the Survey 41 per cent of these rooms had been rebuilt complete with roof. In 25,596 dwellings, 83,679 persons were found temporarily living with other families on account of destruction of their homes."—Senate Document 180, 70th Congress, 2d Session, p. 4.

Employment, Wages, and Income. An appraisal of the economic position of the rural laborer involves consideration of five main elements, namely: the rate of wages customarily paid; the number of wage-earners in proportion to the size of the family; the amount of employment available; the amount of supplemental cash income from the labor of women and children; and, finally, the amount of supplemental support received from the free distribution of food and medicine, the profits from gardening and share-cropping, and income from such miscellaneous sources as livestock and poultry.

Our information with regard to wages is derived in part from official publications and in part from an examination of pay rolls placed at our disposal by plantation operators. Wages vary somewhat, both locally and in different industries in the same region.

A detailed examination of the books of one plantation in each of the three leading industries and also of a fruit plantation, shows for 1926 a modal rate on the sugar plantation of 75 cents a day, on the coffee plantation 50 cents; on the fruit plantation 8 cents an hour, and on the tobacco plantation 80 cents a day. These rates are a little higher in tobacco and a little lower in coffee and sugar than were reported on the same plantations in 1924 and 1925. In May, 1927, the same sugar plantation had a typical rate of 80 cents and the coffee plantation 60 cents.

It appears from the following table, giving pay-roll data taken directly from plantation books covering all sections of the Island in the autumn and winter of 1928-29, that the lowest wages prevail on coffee and tobacco plantations, where gardening and general farming are more common than in the sugar country and where women's earnings add relatively more to the family income.

The Federal census of 1920 gives the average number of persons per family engaged in gainful occupations as 1.6, the persons per family being 5.2. No separate estimate of number employed is given for agricultural families, nor is the number of adult male workers per family indicated separately. Our budgetary study of 267 rural families[11] showed 1.8 workers per family, the average size of the family being 8.1 persons.

WAGE RATES OF AGRICULTURAL WORKERS[a]
I. Number of Workers Employed at Specified Rates

Daily Rate	Sugar[b]		Coffee		Tobacco		Fruit	
	Men	Women	Men	Women	Men	Women	Men	Women
Under 50 cts...	77	....	171	328	30	251	....	12
50–59 cts.....	102	4	260	36	113	92	2	14
60–69 cts.....	408	....	156	....	128	4	35	....
70–79 cts.....	1,627	....	39	....	206	....	168	....
80–89 cts.....	1,292	....	7	....	87	....	131	....
90–99 cts.....	1,193	....	....	....	22	....	116	....
$1.00–$1.24...	2,349	....	1	....	66	....	92	....
$1.25–$1.49...	792	....	2	....	8	....	2	....
$1.50–$1.99...	418	....	....	....	9	....	4	....
$2.00 and over.	26	....	....	....	2	....	1	....
Total	8,284	4	636	364	671	347	551	26

II. Percentage Distribution of Workers, by Wage Groups

Daily Rate	Sugar[b]		Coffee		Tobacco		Fruit	
	Men	Women	Men	Women	Men	Women	Men	Women
Under 50 cts...	.93	....	26.89	90.11	4.47	72.34	....	46.15
50–59 cts.....	1.23	100.00	40.88	9.89	16.84	26.51	.36	53.85
60–69 cts.....	4.93	....	24.53	....	19.08	1.15	6.35	....
70–79 cts.....	19.64	....	6.13	....	30.70	....	30.49	....
80–89 cts.....	15.60	....	1.10	....	12.97	....	23.78	....
90–99 cts.....	14.40	....	....	....	3.28	....	21.05	....
$1.00–$1.24...	28.36	....	.16	....	9.84	....	16.70	....
$1.25–$1.49...	9.56	....	.31	....	1.19	....	.36	....
$1.50–$1.99...	5.04	....	....	....	1.34	....	.73	....
$2.00 and over.	.31	....	....	....	.29	....	.18	....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[a] From Porto Rican Bureau of Labor schedules.

[b] These data include a number of piece workers, with piece rates converted to day rates on the basis of an assumed "average" day. Most of them fall in the $1.00-$1.24 class.

In all three of the leading agricultural industries the workers lose much time, apparently on account of weather conditions. Our plantation pay rolls indicate that as a rule adult workers have four to five days' work a week in the weeks in which they are on the pay roll.[12] This would indicate a typical rate of earnings of $2.75 to $4.50 a week, with the average below $4.00 for the weeks in which the laborer has employment. Average annual earnings cannot be estimated directly from these figures, however, because many laborers have employment for only a part of the year.

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[11] See page 31.

[12] See Appendix B, Table IV.

Employment in all the basic agricultural industries is highly seasonal. Sugar-cane cutting and grinding begins about January and comes to an end in the first half of July. Coffee picking begins late in August or in September and terminates in December or January. In tobacco the height of the season is in December and January, and the dull period in May, June, and July.

Of the three basic industries, coffee production affords much the most even distribution of employment. Outside the harvest season the laborers find employment in planting, caring for, and harvesting the fruits from banana and orange trees, which are interplanted with the coffee trees. There is also a certain amount of labor in the making of charcoal and a considerable volume of work on minor crops. Nevertheless, on the plantations whose records we examined, the amount of work furnished in the peak weeks was about double that in the weeks of minimum employment.[13]

In tobacco the seasonal swing in employment is considerably wider, there being an interval between the harvesting of one crop and the planting of the next. The volume of employment on the plantation studied was from three to six times as high for the busiest twenty weeks as for the twenty weeks in which employment was lowest. In so far as our data indicate, the employment in the busiest season was between two and three times as great as in the slack period, but the period of minimum employment lasted for only a few weeks, the general average being over half the maximum.

To some extent the fluctuations in one industry dovetail into those of others, so that the total amount of employment does not fluctuate as much as does the amount in any one industry. The chart on page 26, which is based on employment data from a small number of selected sugar, coffee, and tobacco plantations, indicates roughly the range of seasonal separately. Our budgetary study of 267 rural families[11] showed 1.8 workers per family, the average size of the family being 8.1 persons.

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[13] For details, see Appendix B, Table I.

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50–59 cts.....	1.23	100.00	40.88	9.89	16.84	26.51	.36	53.85
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70–79 cts.....	19.64	....	6.13	....	30.70	....	30.49	....
80–89 cts.....	15.60	....	1.10	....	12.97	....	23.78	....
90–99 cts.....	14.40	....	....	....	3.28	....	21.05	....
$1.00–$1.24...	28.36	....	.16	....	9.84	....	16.70	....
$1.25–$1.49...	9.56	....	.31	....	1.19	....	.36	....
$1.50–$1.99...	5.04	....	....	....	1.34	....	.73	....
$2.00 and over.	.31	....	....	....	.29	....	.18	....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[a] From Porto Rican Bureau of Labor schedules.

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Employment in all the basic agricultural industries is highly seasonal. Sugar-cane cutting and grinding begins about January and comes to an end in the first half of July. Coffee picking begins late in August or in September and terminates in December or January. In tobacco the height of the season is in December and January, and the dull period in May, June, and July.

Of the three basic industries, coffee production affords much the most even distribution of employment. Outside the harvest season the laborers find employment in planting, caring for, and harvesting the fruits from banana and orange trees, which are interplanted with the coffee trees. There is also a certain amount of labor in the making of charcoal and a considerable volume of work on minor crops. Nevertheless, on the plantations whose records we examined, the amount of work furnished in the peak weeks was about double that in the weeks of minimum employment.[13]

In tobacco the seasonal swing in employment is considerably wider, there being an interval between the harvesting of one crop and the planting of the next. The volume of employment on the plantation studied was from three to six times as high for the busiest twenty weeks as for the twenty weeks in which employment was lowest. In so far as our data indicate, the employment in the busiest season was between two and three times as great as in the slack period, but the period of minimum employment lasted for only a few weeks, the general average being over half the maximum.

To some extent the fluctuations in one industry dovetail into those of others, so that the total amount of employment does not fluctuate as much as does the amount in any one industry. The chart on page 26, which is based on employment data from a small number of selected sugar, coffee, and tobacco plantations, indicates roughly the range of seasonal

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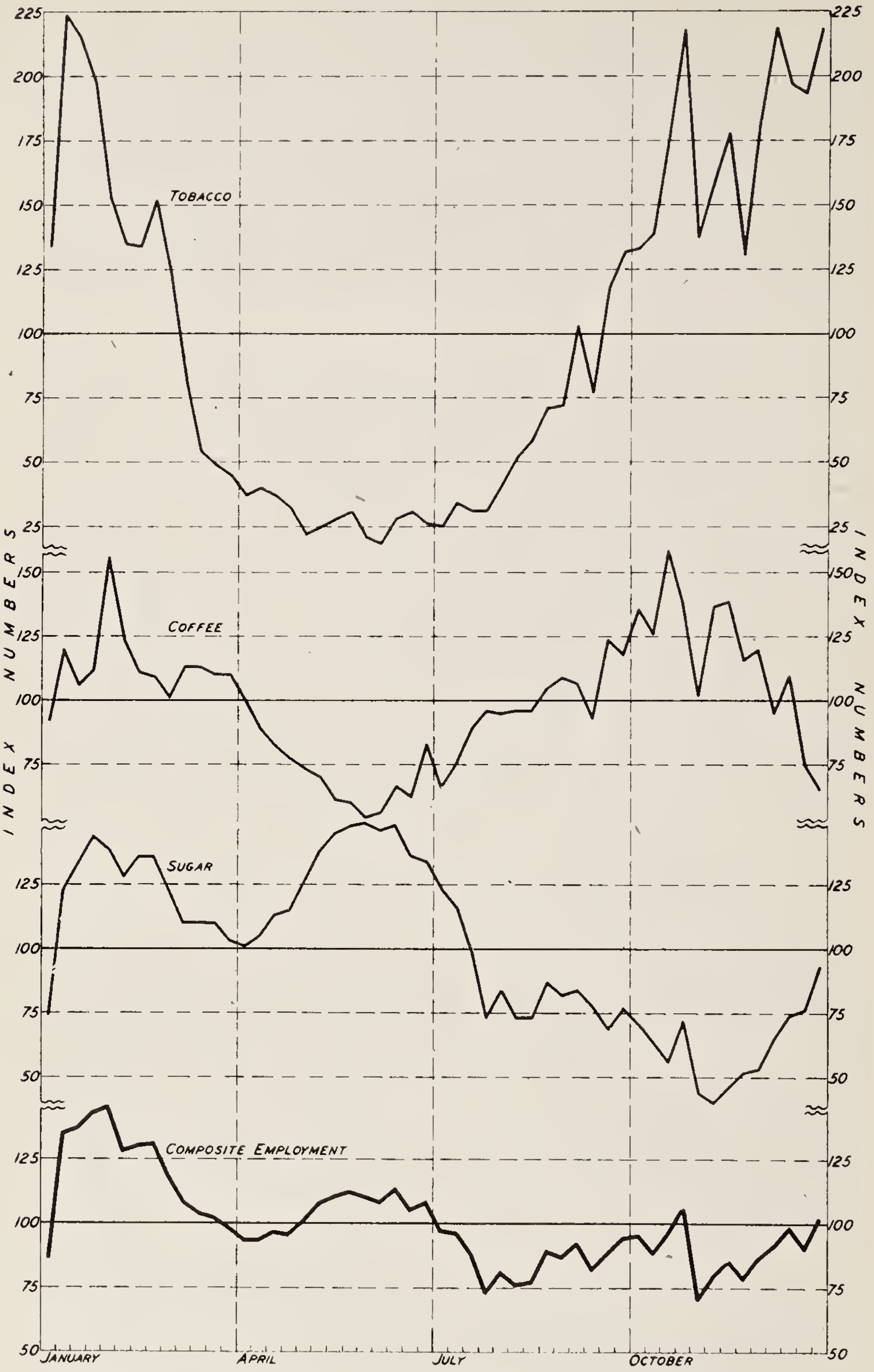
[13] For details, see Appendix B, Table I.

EMPLOYMENT ON SELECTED TOBACCO, COFFEE, AND SUGAR PLANTATIONS, 1924-1926



the report were tabulated. Moreover, they were collected during the cane harvest, when fewer men are idle than at other seasons.

Over 60 per cent of these workers reported wages not exceeding 80 cents a day, and over 30 per cent reported wages not exceeding 60 cents a day; and only 11 per cent earned more than one dollar a day, even at the peak season. The average number of days worked per week was four and a fraction.

An important source of additional income in certain parts of the Island is money paid for home work, chiefly embroidery. In the inquiry made of the school children approximately one-third of the children reported some home work. This home work is done by all members of the family, including, by our estimate, 40 per cent of the school children in the southern part of the Island. Such earnings may run to one and a half or even two dollars a week per family, but are usually lower.

If we figure the average wage income of a rural family as that of 1½ adult male workers, plus $50 supplemental wage income of women and children, we shall not be greatly in error. This would be $250 to $275 per year cash income. This estimate is slightly higher than the income indicated by the budgetary inquiry which was conducted in connection with this study.[17]

In addition, account must be taken of the support which is received in other ways. We have already noted that as a rule the agricultural laborer has no rent to pay. One meal per day is still provided to the workers when employed in some places, though not as extensively as formerly. In the coffee regions workers are allowed a certain number of bananas per day when these are available. There is also, especially in tobacco, an opportunity to raise a considerable amount of food, and there is some income from livestock.

Gardening and Share-Cropping. Only a minority of the rural working class families have gardens or raise food crops, either for themselves or upon shares. It is hard to dogmatize upon this subject, as no general survey has ever been made and sampling is risky where so much depends upon the caprice and character of the landowner himself, upon the crop that predominates on the plantation, and upon the type of land available. Upon some of the American owned and managed fruit plantations, there is a definite insistence that the resident laborers raise some garden crops for themselves; land is provided them for the purpose. Upon other plantations such efforts are discouraged, and upon some they are definitely forbidden. In some cases the objection arises from the belief that the cultivation of food crops by the laborers encourages the spread of insect pests, in other cases, especially in sugar, the land is regarded as too valuable for commercial purposes to permit its use for share-cropping. In tobacco much land is double-cropped by the laborers, that is, planted to food after the tobacco harvest.

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[17] See page 31.

To a large extent, what food crops are raised come from share-cropping. In the survey made by the Porto Rican Department of Agriculture and Labor in 1924-25, to which reference has already been made, information was collected relative to the amount of land tilled by the resident laborers and the conditions on which the land is held. Through the courtesy of the Porto Rican Department of Agriculture and Labor we have obtained from the original schedules of that survey, a sample from the tobacco and coffee plantations and another sample from the sugar plantations. The following table indicates the holdings of 1,209 agricultural laborers, 804 from coffee plantations and 405 from tobacco plantations:[18]

Tenure	Total Number of Acres Tilled	Average per Family
Owned	47.5	.039
On halves	318.0	.263
On thirds	17.0	.014
Leased	31.0	.026
Total	413.5	.342

The sample for sugar cane areas (671 families) gave the following results:

Tenure	Total Number of Acres Tilled	Average per Family
Owned	39.5	.0059
On halves	8.0	.0012
On thirds	....	....
Leased	3.5	.0005
Total	51.0	.0076

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[18] The coffee and the tobacco data were not classified separately for us.

This exhibit indicates that on the whole the resident laborers on the sugar plantations, who make up the largest group total, have almost no land of their own, while laborers in the coffee and tobacco districts quite generally have an opportunity to raise some food.[19]

The impression given by the survey is confirmed by the results of an inquiry which we made through the rural school children. The number of families from which reports were received in this inquiry were 5,218. Of these, 1,208 were reported as share-croppers, that is, a little over 23 per cent, while 2,123, or about 40 per cent, were shown to have home gardens.[20] These figures probably reveal in some measure the stimulus to the growing of food crops which resulted from the distribution of garden and vegetable seeds to many thousands of laborers and farmers by the Red Cross after the great hurricane of 1928.

Livestock. Comparatively few of the plantation laborers possess livestock.[21] This is indicated in a general way by the agricultural census of 1920 and is confirmed by the results of a Department of Agriculture and Labor survey. The 1,209 coffee and tobacco laborers' families and the 671 sugar plantation laborers' families included in the sample drawn off for us, showed the following ownership of food and work animals:

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[19] The tables published by the Porto Rican Department of Agriculture and Labor as a result of the survey in question, showed on an average one acre per family, of which the major portion was tilled on halves. It is clear, however, both from the sample drawn off for our use and from observation of the rural communities, that these totals do not represent the conditions under which the laborer on the commercial plantation makes his living. A survey was made in connection with an attempt of the Porto Rican Commissioner of Agriculture and Labor to encourage share-cropping. The farms visited were those managed by resident owners, not large commercial plantations. The average number of tenants was four per farm and the average area devoted to sugar, coffee, and tobacco was only 40 acres. Hence, it is probable that even the figures shown in our sample, to say nothing of the larger figures shown in the totals published by the Commissioner of Agriculture and Labor, overstate the average amount of share-cropping.

[20] The two figures, 1,208 and 2,123 overlap.

[21] See Chapter XVIII, Section II; also Appendices G and H.

Food and Work Animals Owned by Plantation Laborers

Kind of Animal	Coffee and Tobacco Farms (1,209 families)		Sugar Plantations (671 families)	
	Number of Animals	Number of Families per Animal	Number of Animals	Number of Families per Animal
Horses	38	31.8	5	134.2
Cattle	80	15.1	29	23.1
Goats	171	7.1	34	19.7
Swine	344	3.5	163	4.1
Poultry	4,800	4.0 [a]	1,110	1.7 [a]

[a] Average number of fowls per family.

More recent data on this subject were gathered—though indirectly—from questions asked by a representative of this survey in the country schools. This inquiry covered 5,218 families and indicates that while chickens were to be found at the homes of nine-tenths of the children, only slightly over one-half had pigs and the proportion of other animals was still less. The numbers reported were as follows:

Type of Animal	Families Reporting Possession	Percentage of Total
Dairy cattle, including young stock	2,008	38.5
Swine	2,756	52.8
Goats	1,419	27.2
Oxen	653	12.5
Horses	1,144	21.9
Chickens	4,749	91.0

It should be borne in mind in this connection that among the children interviewed, those coming from the relatively well-to-do families of the respective vicinities tended to predominate. The poorest children do not get to school at all, and even the children of farmers somewhat better situated rarely remain in school until they reach even the intermediate grades.

Furthermore, possession of farm animals does not necessarily indicate ownership. For example, there are at least three ways of "holding" a pig in Porto Rico. The family may own the animal outright; it may have it on halves *(a medias)*;

that is, it has the animal to feed and receives from the owner one-half the price it brings when sold; or it may have the animal on gain *(ganancia)*; that is, it has the animal to raise on condition that when it is sold, the owner shall deduct the original purchase price and divide the profit equally with the family that raised it. The increase, if any, is also divided.

A similar custom prevails with cows. A laboring family may be given a cow to care for and keep on the condition that it retain all or half the milk. The value of the calf is divided between the original owner and the family caring for the animal. This system accounts for about 13 per cent of the distribution of food animals among the families reported in our inquiry.

While we have no separate data for the laborers who do not live on commercial plantations, it is a safe assumption that the resident laborers who live on the 20,000 small farms largely devoted to general farming would make the best showing in terms of ownership of food and work animals.

Family Budgets. Nearly all of the money earned as wages is spent for food. In an attempt to measure the relation between weekly wages and current expenditures, 267 rural working class families were canvassed for this study.[22]

These families contained 2,172 persons, or an average of 8.1 persons per family.[23] The average number of workers per family was reported as 1.8, a figure somewhat higher than the census averages for the entire population.

For the week in question these families reported an average income of $6.71 per family; $3.49 per worker; and 85 cents per person. It should be noticed that this income represents the busy season in sugar, when wages and labor are at the employment peak. It also represents an unusual condition in that much construction work in the rural community was going on and the Red Cross was paying a wage for the cleaning of coffee plantations that was somewhat higher than is typical in the Island. Nevertheless, the earnings are less than would result from five days' employment at 75 cents per day.

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[22] These families were taken at random in all parts of the Island, without any attempt at selection. The families most easily accessible from the main roads were more largely represented than those living in less accessible districts, although some of the families were reached only by climbing over mountainous country on foot paths.

[23] The average size of the family, 8.1 persons, checks very closely with the average size of the family revealed from our study of housing, made on the basis of rural families having children in school. (See page 19.) This figure, however, is considerably larger than the averages given in the census reports and elsewhere. The high figure may be due merely to the smallness of our sample, or it may be affected by the conditions following the hurricane, which had passed over the Island some months before.

These 267 families spent approximately 94 per cent of their weekly earnings for a selected group of foods.[24] The largest

RURAL FOOD EXPENDITURE CLASSIFIED BY ITEMS PURCHASED FOR ONE WEEK IN MARCH, 1929

(Based on 267 schedules)

Commodity	Amount Spent for Given Item	
	In Dollars	As Percentage of Principal Food Expenditure for the Group
Rice	325.72	19.4
Beans	156.09	9.3
Coffee	138.00	8.2
Sugar	114.95	6.8
Bread	96.32	5.7
Cow's milk	91.18	5.4
Codfish	88.46	5.3
Meat	83.77	5.0
Lard	79.60	4.7
Mess pork	73.54	4.4
Corn meal	62.89	3.7
Sweet potatoes	61.22	3.6
Ham	55.25	3.3
Yautias	48.29	2.9
Chick peas	44.09	2.6
Potatoes	34.42	2.1
Noodles	29.49	1.8
Oil (edible)	26.33	1.6
Canned milk	22.20	1.3
Crackers	17.19	1.0
Cheese	13.98	0.8
Butter	7.24	0.4
Olives	7.19	0.4
Bananas	4.73	0.3
Total	1,682.14	100.0

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[24] To curtail the difficulties in tabulation, certain items were omitted which represented a very small proportion of the total expenditure for food.

single item in this expenditure was for polished rice, followed in order by beans, coffee, sugar, and bread. These five items make up about half the total expenditure. In tabular form the food purchases of these families are shown on the opposite page.

To appreciate the significance of this exhibit, it must, of course, be borne in mind that in the tropics the ordinary demands upon the family purse for shelter, food, fuel, and clothing are at a minimum. Shoes, which are essential for health, however, are beyond the reach of a large fraction of these people. Of other expenditures than those for sheer necessities, those for tobacco are the most important, and they amount to only a few cents a week. Practically nothing is expended for amusement, recreation, books, newspapers, insurance, movies, health, clubs, social organizations, lodges, and churches.

Hull Photo

JÍBAROS OF THE MOUNTAIN COUNTRY

One of the most disturbing aspects of the family budgets of the Island is the dominance of imported dry foods, especially polished rice. The bad hygienic results of a diet so lacking in vitamines needs no comment. This is part of the price Porto Rico pays for its extraordinary degree of specialization and dependence on foreign trade. By importing a very large proportion of its food, the Island is able to export the maximum amount of the staple crops to the production of which it is especially fitted. Whatever may be the net financial gain from this specialization, it has clearly encouraged the use of a monotonous and debilitating diet by a large proportion of the people.

The per capita purchases abroad of staple provisions have increased as follows since the last year of Spanish rule in the middle nineties:

GROWTH OF NET IMPORTS OF PRINCIPAL FOODS SINCE 1895 [a]
(From United States and Foreign Countries)

Staple Food Imports	Yearly Average in Pounds per Capita		Percentage Increase
	1894 and 1895 [b]	1927 and 1928 [c]	
Dairy products	1.8	3.4	88.9
Meat products, excluding canned meats [d]	13.4	30.2	125.3
Wheat flour	44.6	49.0	9.9
Bread, biscuits, pastes for soups, and all other preparations of, used as food	1.7	3.0	76.5
Canned goods, excluding vegetables	.6	7.2	1100.0
Chocolate, sweetmeats, cocoa and cacao	.5	2.8	460.0
Olive oil	3.1	1.0	—67.7
Rice	81.4	127.8	57.0
Vegetables, including canned	19.1	56.4 [e]	195.3
Fish and shellfish, fresh, salted and otherwise prepared	30.2	27.1	—10.3
Total	196.4	298.2	51.8

[a] Figures for 1894 and 1895 are from Hitchcock, F. H., *Trade in Puerto Rico;* United States Department of Agriculture; pp. 16-19. Figures for 1927 and 1928 are from the *Annual Reports* of the Governor of Porto Rico for those years.

[b] Years ending Dec. 31.

[c] Years ending June 30.

[d] Includes lard and lard compounds, which in 1927 and 1928 averaged 11.1 pounds per capita.

[e] Does not include other fresh vegetables and vegetable preparations.

The Island's total expenditures for imported foodstuffs, especially staple provisions as distinguished from specialties, have, however, shown no tendency to advance during the past six years of relatively stable prices. They did, of course, rise to exceptional heights in 1929, while the population was largely dependent upon relief provisions as a consequence of the hurricane.

IMPORTS [a]
(In thousands of dollars)

Year	Staple Foods of General Consumption	Food Specialties Chiefly Consumed in Cities	Total
1924	19,695	9,386	29,081
1925	21,764	10,114	31,878
1926	23,984	10,738	34,722
1927	22,400	10,892	33,292
1928	20,139	9,505	29,644
1929[b]	20,518	14,039	34,557

[a] *Merchandise received by Porto Rico from the United States and Foreign Countries, by Classes*, which was compiled from the Reports of the Governors of Porto Rico.

[b] Figures for 1929 were obtained from the Report of the Customs Collector of Porto Rico.

General Conditions. The isolation of the Porto Rican mountaineers has made it peculiarly difficult to deal with the varied problems which confront them. They live dispersed in isolated individual families; although the country is crowded with people, and the person wandering over the mountains is almost never beyond the sound of a human voice, there is practically no rural social organization. The country is broken by deep gulches and steep mountain sides into a series of isolated localities, which seem close together but are mutually inaccessible. The good roads skirt the mountain sides or follow the valleys in a thousand curves.

The remoter peasantry must be sought by climbing over steep ridges, through narrow paths that lead in different ways—each to a little hut hidden under some mountain ledge, or lodged on a peak. As one looks down from one of the high points on the Island, he can see innumerable little huts, scattered hither and thither as far as the eye can reach. But one almost never sees two huts together. This custom of dwelling in isolation is due partly to habit and preference, and partly to the fact that the landowner prefers to settle his tenants on the least valuable and, therefore, the least accessible bits of land.

Most of the dwellings hug the mountain sides and are raised on poles, not only to keep them off the ground but also to give them balance and an even foundation. They can only be reached on foot, over narrow paths. There the *jíbaro,* with his family, lives apart. He rarely goes to town. His social contacts are with the landlord, with the local store—frequently owned by the landowner—and with the school. The school is in many ways the only, certainly the chief, source of social contact with the world about him and with his neighbors. This general description is less true of the living quarters in the sugar cane region, where more "labor colonies" are to be found, but even there the little isolated hut, set on some ridge above the cane, is not uncommon.

An attack upon the problems of the rural community should include an attack upon this mode of residence. And that raises many problems of land ownership and overpopulation. It is becoming increasingly difficult for the *jíbaro* to find a place to live. He is not wanted unless absolutely needed. One large landowner remarked, "the little landowner has many relatives." The resident laborer, or *agregado,* may be a burden. And where labor is plentiful and to be had at will, there is no inducement for the landowner to provide him with a place for residence. Any real improvement of the very grave condition of the rural community will ultimately involve grouping the rural population in some sort of village communities—each with a school in the center, with some means of social organization, some prospect of permanence—something in the nature of a home in a group of neighbors instead of a hut at another man's will on an isolated mountain side. Until that is done, neither the rural school nor the governmental medical and sanitary campaigns will have their full effect or, perhaps, be able to achieve the ends which they are meant to serve.

As one wanders over the mountains he observes many depressing features of community life. Almost anywhere he is likely to meet a father carrying a little coffin on his head, alone, on his way to the cemetery. One may often see a boy carrying a baby in a coffin, going along the public highway, unaccompanied, wending his way to the public burial ground.

In the months immediately following the hurricane, the universal answer to the question, "How are you getting along?" is "Estamos muriendo de hambre." (We are dying of hunger) or "There is nothing to eat"—always accompanied by a peculiar gesture of a half closed hand to an open mouth.

Emergencies and misfortune are either completely unprovided for, or they are provided for "providentially." There may be a pig, or goat which may be sold; appeals may be made to the landlord, to some charitable association like the Red Cross, or to some religious or philanthropic organization. Or there may be recourse to the municipal doctor, where there is one, and to the municipal drug store and dispensary, where one is to be found.

Generally speaking, birth, sickness, accident, and death are suffered with little attempt at alleviation. In the mountain homes of the *jíbaro* one all too commonly finds illness and suffering accepted with a helpless fatalism.

There is a degree of submissiveness to misfortune and a lack of class feeling that to an outside observer is difficult to understand. Perhaps it is the widespread illness, perhaps it is the background of slavery and feudalism, perhaps it is the extreme poverty, perhaps the terrific impact of the periodic storms that carry all away with them and make human effort and ingenuity seem like naught, that explains the passive helplessness of the rural community.

In spite of his fatalism the *jíbaro* is kindly, friendly and courteous, and hospitable to the last degree. He will ask you in to sit on his doorstep, and while you rest will hurry to boil you a cup of black coffee. One day while climbing a steep mountain side along one of the many footpaths that always lead to a *jíbaro* home, one of the members of the survey staff stopped to rest in front of a little hut. On the doorstep sat a middle-aged woman. In front of the hut two barefooted children were playing. After talking with the woman for a while he noticed that within the house, stretched on the floor, was the body of a dead man, with newly lighted candles burning at his head. The woman on the doorstep at length remarked: "I am now poorer than ever. My husband is dead." Then, after a pause, "Won't you come in and rest? I will make you a cup of coffee."

In the face of appalling poverty and disease there are but few social or scientific agencies that are seriously concerned with the problems of the rural community. After a cataclysmic calamity like the recent hurricane, the Red Cross did a yeomanly piece of work in attempting to rebuild the houses of the poor. The Rockefeller Foundation is pursuing an energetic campaign against malaria. The recently established School of Tropical Medicine is studying tropical disease and problems of nutrition. Religious orders of the Catholic Church, like the Redemptionists, and also Protestant missions, are doing their bit. But taken together, they are but a drop in the bucket. It is poverty, it is insufficient income for proper nourishment, it is the lack of a permanent home, it is the lack of a right to a piece of land, it is the absence of social organization in a scattered and isolated community that is at the root of the problem. Until some change has been wrought in the economic status of the mass of the people, most of the efforts will have a negligible or a temporary influence.

A further complicating factor is the peculiar family structure of the Porto Rican rural community. The census of 1920 shows that at that date 13.4 per cent of all males and 14.0 per cent of all females 15 years of age and over were consensually married. In other words, nearly one-sixth of the adult population have irregular family ties. Whatever may be the degree of responsibility that attaches to parentage under that condition, the fact remains that there is a looseness in the family relation that is surprising to an outsider. It is accepted as a matter of course, at least among the poorer population, that family attachments may be made and broken at will.

A compensatory factor in this situation is the peculiar readiness with which the poorest of families will take others' children and bring them up as their own. With the death of the mother, the neighbors divide the children among themselves. In conversation one will be told that "This child came to me at birth, this one when he was 6 months old, and that one when he was 2 years of age." Children in school will speak of a brother or sister *de crianza* (by rearing).

The results of education and political freedom are at present developing a civic consciousness among the people that is seemingly its greatest, perhaps its only, hope for the future. When one turns for a summary view of the situation and looks for a way out, one reverts to the little rural school, and from the school to that something which American occupation has brought to the Island, which may, perhaps, be best characterized as political freedom. Certainly, the rural school, the high school, and the university are creating a type of civic consciousness among the people which did not exist before, and which would be impossible without this increasing spread of public education. It is creating an interest in, and an understanding of, the problems that afflict Porto Rico and a spirit of "social reform" that has much to offer to the future.

With this certainly goes the political instrumentality of universal suffrage and the political discussion that has come from the United States. The people are developing leadership and interest in their own problems, which, in the long run, may make them less apathetic, less submissive, more socially minded, and more willing to attack the grave problems that confront them.

The common people in the country look to the United States for help and guidance with a degree of faith and hope that is naïvely childlike. The promise of aid from the United States, their newly gained political democracy, which they are slowly learning how to manipulate, and their increasing acquisition of knowledge through a still inadequate but improving school system, offer their only prospect of escape—and that at best seems a long way off.

II. TOWN WORKERS

The only truly urban area in Porto Rico is San Juan and the adjoining municipalities of Río Piedras and Bayamón, which have a combined population of less than 120,000, most of whom live under suburban conditions. Congested districts and slums exist even in towns of moderate size, but the permanent isolation from country scenes and influences characteristic of life in a mainland metropolis is virtually unknown. Indeed, a large fraction of the present town population was reared in the country. As a result, rustic antecedents are reflected in the nominally urban attitudes and habits."[25]

Housing. No tall tenements or streets darkened by lofty buildings shadow the lives of the laboring masses. Sunshine and warmth are an alleviating factor in their existence. This affects children, in particular. On the basis of a recent study of rickets in San Juan and Ponce, the Children's Bureau reports: "There is no doubt that the children of Porto Rico receive a large amount of sunlight. Of those examined, 68 per cent were tanned by the sun; 88 per cent lived in houses that let in a large amount of sunlight; 10 per cent in houses that let in a fair or small amount, and 2½ per cent of the population lives in houses that were dark."[26]

That portion of San Juan which was enclosed within the city walls, until the town burst its bonds and spread several miles into the country along cheap bus lines and electric railways, still retains tenement courts which harbor whole families in single cellar-like, lower-story cubicles. But even these buildings usually have sunny *patios.* Sunshine and outdoor life presumably account for the fact that although an overwhelming majority of the 584 children under 3 years of age studied in connection with the Federal investigation just mentioned were seriously undernourished, only one of them showed marked, active rickets, and this child "had always lived in an artificially lighted cellar."[27]

Thus the slum, though it presents an acute problem, is not typical of working class quarters. Families of mechanics and other skilled workers, whose wages range for the most part from $1 to $3 a day[28] may live in suburban frame cottages of three or four rooms or in rather more congested apartments in mid-city tenements. Casual laborers and other unskilled workers whose irregular employment makes their daily wage an inaccurate measure of family income, frequently occupy hovels built by themselves of chance materials on crowded and unsanitary sites. As a rule the worst home surroundings occur in the wharf laborer sections of the port towns, where vice often depresses a standard of living already below a normal subsistence level. Many interior towns have fringes of similar hovels occupied in part by laborers who find employment during the harvest season in cane or tobacco fields. Moreover, every population center, however small, supports petty trades and callings, such as peddling, boot polishing, errand running, and even mendicancy, which enable a number to eke out a precarious living on the border line of penury. Except in a few suburbs of the capital and the more important provincial towns, where special efforts have been made to give the working people a chance to own homes, wage earners and minor salaried employees live in rented quarters. Even when the occupant owns the house that shelters him, it is often on rented ground and is likely to be merely a shack, built with the uncertainty of his tenure in mind. Several years ago a study made in one of the suburbs of San Juan showed that of nearly 11,000 people living in 14,000 houses, 98 per cent were renters, either of the premises on which they resided or of the land upon which the buildings stood. The rents they paid were exorbitant. One property assessed at $6,340 produced a gross revenue for its owner of $2,580, or more than 37 per cent. Another property, the tax value of which was $29,460, rented for $7,821, or practically 24 per cent.[29] In a more recent instance a man owning a seven-room building without sanitary conveniences for which a fair rental value including a ground rent of $5 a month would have been $17, was actually collecting $42 a month from the seven families living on the premises. Nonpayment and tardy payment of rents reduce the net income from such property materially. In a slum district embraced within the section of San Juan, for which these figures are quoted, 10 per cent of the tenants are reported never to pay their rents and another 10 per cent to be always eight months or more in arrears.[30]

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[25] A recent study of conditions in one of the poorest quarters of San Juan indicated that 90 per cent of the residents came from other parts of the Island.—Alfonso, *Estudio Social-Económico del Barrio Miranda;* compare also Rodríguez, Joaquina, *Estudio Sociológico de la Sección de Puerta de Tierra denominada Salsipuedes.*

[26] United States Children's Bureau, *Report,* 1927-28, p. 13.

[27] *Ibid.,* p. 12.

[28] Bureau of Labor, *Report,* 1928, pp. 17-23.

The workers of the better class in the larger towns pay from $8 to $15 a month for an apartment containing a living room, a bedroom, and a kitchen. In smaller towns rents are about one-half of this amount.[31]

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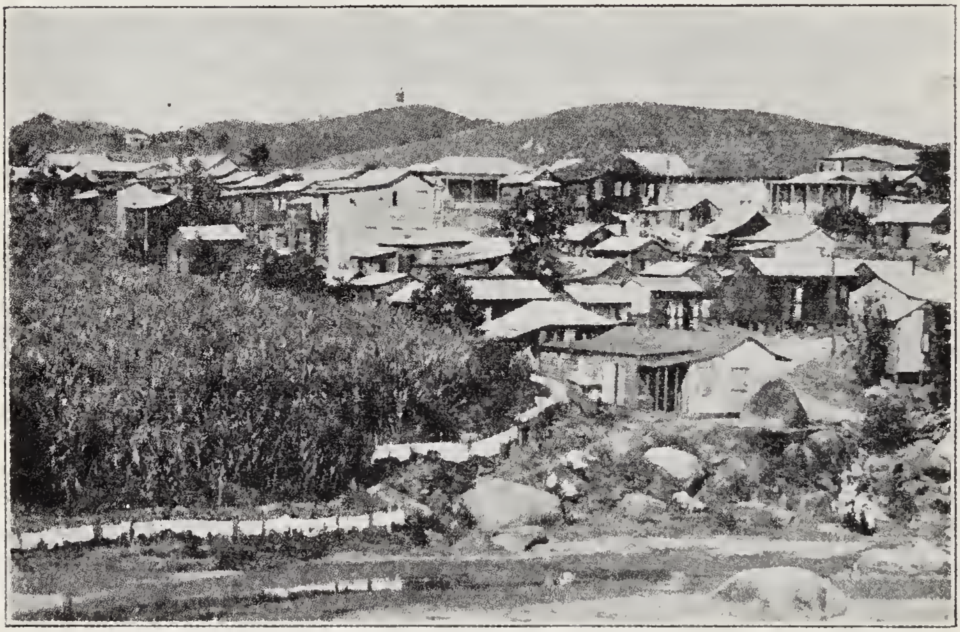
[29] Bureau of Labor, *Report*, 1920, p. 9.

[30] Alfonso, *Estudio Social-Económico del Barrio Miranda.*

Somewhat higher in the economic scale are teachers, salesmen, government clerks, young merchants, and some professional men, whose standard of living relatively to the rest of the population is comparable with that of government employees in Washington. An American who has developed a modern suburb in San Juan, where he has erected all the houses on the property, making them of harmonious design and of approximately equal cost especially to meet the needs of this class of owners, has discovered from experience that places costing about $4,000 upon which aggregate monthly payments, including principal and interest, amount to $32, have the readiest sale. Such bungalows of substantial stucco and frame construction have all the conveniences of a middle-class home upon the mainland, and include small but improved and attractive grounds and not infrequently a garage. They are rather more roomy and pleasant than houses costing the same amount upon the continent because they do not require cellars or central heating plants. Many homes of the same general type,



At the Town's Edge

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[31] Bureau of Labor, *Report*, 1928, p. 38.

showing the influence of California and Florida models, have been built since the war in the newer sections of the larger country towns and occasionally in rural districts.

A recent study of the housing condition of skilled workers in all parts of the Island, including large and small towns, shows that between 40 and 50 per cent own their own homes and that a majority occupy two-room houses or tenements. The term "skilled workers" is not to be taken as strictly as it would be in wage classifications upon the mainland, as the total presumably includes a considerable number of helpers.

Old Style Tenements

Family Incomes. No scientific study of family income and expenditure covering representative sections of the working people has ever been made in Porto Rico.[32] In general, city workers are better off than country workers. Wage averages in the cities are made higher than they would otherwise be by the fact that the majority of skilled workers are employed

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[32] Such data from over 400 urban families will be published shortly by the Federal Children's Bureau. Partial figures relating to these topics are to be found, also, in the reports of the Insular Bureau of Labor.

HOUSING CONDITIONS OF SKILLED WORKERS BY OCCUPATION, 1927[a]

Occupation of Worker	Towns Repre-sented	Workers Visited	Average Size of Family	Rooms Per House			Number Owning Houses	Number Paying Rent Per Month			
				1	2	3 or More		Under $5.00	$5.00 to $15.00	$15.00 or Over	Total[b]
Baker	76	276	4.8	38	172	66	145	63	60	2	125
Barber	76	214	4.5	22	95	97	87	53	64	5	122
Building mechanic	75	593	5.1	54	286	253	321	94	138	14	246
Cigar maker	70	274	4.5	48	176	50	130	84	48	4	136
Iron worker	24	80	4.4	13	21	46	34	8	22	5	35
Longshoreman	12	218	5.0	31	167	20	114	77	24	..	101
Printer	19	109	4.1	16	43	50	31	17	47	14	78
Shoemaker	76	265	4.3	54	158	53	98	83	72	4	159
Tailor	31	61	4.5	1	40	20	23	12	21	4	37
Other[b]	..	207	4.4	50	98	59	73	41	69	17	127
All visited		2,297		327	1,256	714	1,056[c]	532	565	69	1,166[c]

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[a] Source—Annual Report of Bureau of Labor of Porto Rico, March, 1928.

[b] Composed of miscellaneous trades with watchmakers, tinsmiths, cabinet-makers, hat-makers, and confectioners predominating.

[c] In some cases workers reporting neither own their homes nor pay rent; they live either with relatives or in dwellings furnished by employers.

there. But the rates paid unskilled labor, also, are higher, and this affects rural wages in some sections, especially in the vicinity of San Juan.

This gives the impression that in general city workers are better off than country workers. The cost of imported food, which forms a large fraction of the diet of laborers in town and country alike, is no more and probably is less than in the rural districts. Housing costs are higher in the city than in the country. Perhaps the greatest advantage enjoyed by city and small-town workers is their opportunity to engage in more varied employments, and the greater likelihood that other members of their families will be able to add appreciably to the income of the household from their earnings. Furthermore, it is among the laborers who reside in those rural sections where they are dependent for a living on a single crop and oftentimes on a single employer, that one finds the greatest evidence of economic hardship.

A description of several families of working people in the poorer quarter of a medium-sized country town, published in

EMPLOYMENT AND WAGE CONDITIONS OF PORTO RICAN SKILLED WORKERS FOR 1927[a]

Occupation	Workers Represented	Number Working Given Period per Month			Number Earning Indicated Rate per Day		
		Under 10 Days	10–20 Days	20 Days or Over	Under $1	$1–$2	$2 or Over
Bakers	276	8	106	162	7	193	76
Barbers	214	1	29	184	91	111	12
Building mechanics	593	54	386	153	....	232	361[b]
Cigar makers	274	4	135	135	221	44	9
Iron workers	80	3	11	66	25	32	23
Longshoremen	218	121	79	18	....	94[c]	124
Printers	109	....	4	105	....	56	53
Shoe makers	265	9	89	167	124	131	10
Tailors	61	1	13	47	18	33	10
Others[d]	207	7	49	151	29	94	84
All	2,297	208	901	1,188	515	1,020	762

[a] Source—*Annual Report* of Bureau of Labor of Porto Rico, March, 1928.

[b] Of this number, 125 earned over $3.00 per day.

[c] Includes those earning under $1.00.

[d] Composed of miscellaneous trades with watch makers, tinsmiths, cabinet makers, hat makers, and confectioners predominating.

1899, is true of conditions in many homes of a comparable class today.[33] But during the intervening years a better class of workingmen's homes very rare indeed at the earlier date, has become fairly common, largely on account of the diversification of employment accompanying the incipient industrialization of the Island.

Most of the building mechanics recorded in the tables on pages 44 and 45 were carpenters and carpenters' helpers, and most of the iron workers were blacksmiths and blacksmiths' helpers. Wage and employment data presented in the table on page 45 relate to the particular group of workers whose housing conditions have just been described.

In the autumn of 1928 data with regard to wage rates for male workers in other trades were compiled from the pay rolls of representative industrial establishments by the agents of the Insular Bureau of Labor. These data cover 6,089 day workers and 3,124 workers by the week. The industries represented and the number of workers included from each were as follows:

Industry	Day Workers	Week Workers
Metal trades	531	548
Food and drink	375	293
Tobacco trades	1,383	1,118
Garment trades	34	396
Sugar mill	3,479	375
Printing trades	2	155
All other	285	239
Total	6,089	3,124

The table which follows classifies these workers on the basis of wage rates. With the exception of column one, the figures are given in percentage terms, but the number of workers represented by these relatives may, of course, be roughly determined from the figures which we have just given showing the number of workers by industries.

Comparatively few men employed in the industrial establishments reported earned less than $1 a day. A majority of those receiving a lower wage were presumably boys and

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[33] See the account of Yauco, in Carroll, Henry K., *Report on the Island of Porto Rico*, submitted to William McKinley, President of the United States, October 6, 1899, pp. 750-53.

Wage Rates of 9,213 Male Workers Employed in Industry

I. Workers Employed by the Day

Wage Rate	Workers in Each Wage Class		Number in Each Wage Class as Percentage of Total, by Industries						
	Number	As a Percentage of Total	Metal Trades	Food and Drink	Tobacco Trades	Garment Trades	Printing Trades	Sugar Mill	All Other
Under $0.50....	15	2	1.3[a]	......	.4	......	......	......	.7
$0.50–.59......	33	.6	.8[a]	1.6	1.2	......	......	.1	1.0[a]
.60–69.......	22	.4	.9[a]	......	.4	......	......	.2	1.8
.70–.79......	323	5.3	1.1[a]	7.2	3.5	14.7	......	6.8	.4
.80–.89......	360	5.9	.2[a]	6.1	1.2	2.9	......	9.2	......
.90–.99......	479	7.9	.9[a]	3.7	3.5	......	......	11.8	......
1.00–1.24.....	1,610	26.4	10.5	30.4	31.7	35.3	......	27.7	8.8
1.25–1.49.....	696	11.4	8.9	17.9	8.5	26.5	......	12.8	3.8
1.50–1.99.....	1,478	24.3	23.4	17.1	35.3	14.7	......	20.3	31.2
2.00 and over..	1,073	17.6	52.0	16.0	14.3	5.9	100.0	11.1	52.3
Total......	6,089	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

II. Workers Employed by the Week

Under $2.00....	71	2.3	4.9[a]	1.4	1.3	2.0	7.7	......	2.1
$ 2.00–2.99....	98	3.1	8.4	1.7	.7	8.3	1.9	......	1.3
3.00–3.99....	137	4.4	7.1	6.8	2.3	11.4	1.9[a]	......	1.7
4.00–4.99....	170	5.5	3.1	7.8	7.3	6.3	2.6	......	7.9
5.00–7.49....	629	20.1	14.1	27.3	24.8	16.7	14.2	7.7	33.0
7.50–9.99....	456	14.6	12.0	10.6	20.1	11.9	12.3	7.2	17.2
10.00–14.99...	713	22.8	20.4	23.2	19.8	19.9	25.8	36.5	23.4
15.00–19.99...	392	12.5	11.9	14.3	10.7	12.9	11.0	21.9	6.3
20.00 and over.	458	14.7	18.1	6.9	13.0	10.6	22.6	26.7	7.1
Total......	3,124	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Apprentices only.

youths and most of them were classified in the returns as apprentices. Metal trades, where the best rates of pay prevail, embrace a group of occupations ranging from automobile repair work to skilled labor in foundries and machine shops manufacturing sugar mills.

A similar compilation of data was made for 12,251 female workers. The industries represented and the number of workers included from each were as follows:

Industry	Day Workers	Week Workers
Food and drink	323	67
Tobacco trades	1,929	7,260
Garment trades	189	2,174
All others	93	214
Total	2,534	9,715

A classification of these workers on the basis of wage rates is given below:

Wage Rates of 12,249 Female Workers Employed in Industry

I. Workers Employed by the Day

Wage Rate	Workers in Each Wage Class		Number in Each Wage Class as Percentage of Total, by Industries			
	Number	As a Percentage of Total	Food and Drink	Tobacco Trades	Garment Trades	All Other
Under $0.50	112	4.4	22.0	1.4	1.1	14.0
$0.50–59	253	10.0	13.0	9.5	11.1	7.5
.60–.69	91	3.6	22.3	.3	1.6	10.8
.70–.79	593	23.4	9.9	25.8	29.6	7.5
.80–.89	210	8.3	21.4	6.6	6.3	1.1
.90–.99	67	2.6	...	3.5	...	...
1.00–1.24	1,007	39.7	10.8	44.7	37.6	40.9
1.25–1.49	104	4.1	...	4.6	6.9	2.1
1.50–1.99	60	2.4	...	2.2	5.8	6.4
2.00 and over	37	1.5	.6	1.4	...	9.7
Total	2,534	100.0	100.0	100.0	100.0	100.0

II. Workers Employed by the Week

Under $2.00	699	7.2	...	8.7	2.6	5.1
$2.00–2.99	1,509	15.5	4.3	17.1	11.3	8.9
3.00–3.99	2,484	25.6	14.5	27.9	18.8	17.8
4.00–4.99	2,206	22.7	11.5	24.2	18.4	17.7
5.00–7.49	2,070	21.3	65.2	16.5	33.8	43.5
7.50–9.99	564	5.8	1.5	4.4	10.8	3.3
10.00–14.99	134	1.4	1.5	.9	3.3	2.3
15.00–19.99	29	.3	...	.2	.6	.5
20.00 and over	20	.2	1.5	.1	.4	.9
Total	9,715	100.0	100.0	100.0	100.0	100.0

While the preceding tables contain sample data and by no means represent a complete census of manufacturing establishments, it is significant that the number of women operatives reported exceeds the number of men. Nearly two out of three of the male wage earners are paid a daily rate, but well toward three-fourths of the female wage earners work on a weekly basis. Moreover, the proportion of piece workers is relatively greater in case of women, especially in the tobacco and garment trades, where nearly all compensation is graded by the worker's output. The number of hours worked per week is probably less in the case of women than in the case of men. It would appear from the table that the wages of female industrial workers employed at a daily rate approximate those of male field laborers on sugar plantations; for more than 47 per cent of them earn $1 and upwards per day; on the other hand, less than 30 per cent of those working for weekly wages earn $5 and upwards per week. A majority of the female operatives whose compensation is reported were engaged in the garment and tobacco trades. The weekly and the annual earnings of needle workers employed in shops apparently exceed those of tobacco workers, partly because the average rate of pay is higher, as indicated by the table above, and partly because they have more continuous employment. Twenty tobacco factories in the city of Caguas with 2,390 women and 905 men on their payrolls in the winter of 1928-29 expended in wages the previous year $602,639.43, or $182.90 per capita; while 46 garment-making establishments in Mayagüez employing at corresponding dates 2,418 women and 218 men paid their shop workers during the previous twelve months $625,918 or $237.45 per capita. Incidentally, during the same year, the latter firms paid more than $2,000,000 to an undetermined number of piece-rate workers employed in the needle trades in their own homes.

Probably the best sample data on unemployment that we possess were collected in connection with an investigation made in 1926 for the purpose of fixing payroll premiums for workmen's compensation insurance.[34] At that time an enumeration was made of idle and partially idle male workers of wage-earning age in the municipality of Ponce, which consists of 6 urban wards and 22 rural *barrios* having at the time of the 1920 census a population of 41,912 and 29,519, respectively. This record shows the following conditions:

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[34] An unpublished, confidential report, made available to the Director of the Survey of Porto Rico, with permission to use here.

	Number of Men	Months Employed	Percentage of Unemployment
Totally unemployed	377	....	100.0
Partially unemployed	7,978	42,847	55.2
Steadily employed	9,367	112,404	....
Totals	17,722	155,251	27.0

As to the applicability of this sample to the Island as a whole the makers of this survey comment as follows:

> Reports . . . from many of the municipalities show very little unemployment. Others show no unemployment at all, and some state that at certain times of the year, or when construction work is in progress, the difficulty is to secure the labor required. . . . Ponce's ratio of unemployment is admittedly high; hence in using it as a basis for determining the approximate payroll potentiality of the Island, the result will be correspondingly conservative.

The Island's actual payroll for all male workers receiving less than $1,500 a year was estimated at this time to be slightly under 50 million dollars, as compared with a potential payroll of more than 76 million dollars were all available male labor steadily employed.

III. THE LABOR MOVEMENT

Social betterment had its advocates among intelligent Islanders before the American occupation and a few societies of working people, or *gremios,* including employers, employees, and independent handicraftsmen, had been formed among members of the various crafts in some of the larger towns. But if we except one or two strikes among cigar makers, no record exists of an aggressive labor movement or of organized effort to improve the condition of the masses by their own action or by special legislation.[35] In fact, until 1902, four years after the American occupation, when the courts finally decided that Porto Rican workers enjoyed the same right to form associations, in order to protect and promote their interests, that were enjoyed by their fellows on the mainland, the Spanish Conspiracy Laws remained a menace to independent labor action. Local statutes followed that decision, expressly granting working people the right to form unions and making it unlawful to compel a workman to enter into an agreement not to join a union as a condition of employment. By March, 1905, there were 123 unions in the Island, all of which were members of a local federation, which in turn was affiliated with the American Federation of Labor.[36] The latest available figures credit the Federation with 236 organizations and about 35,000 members.

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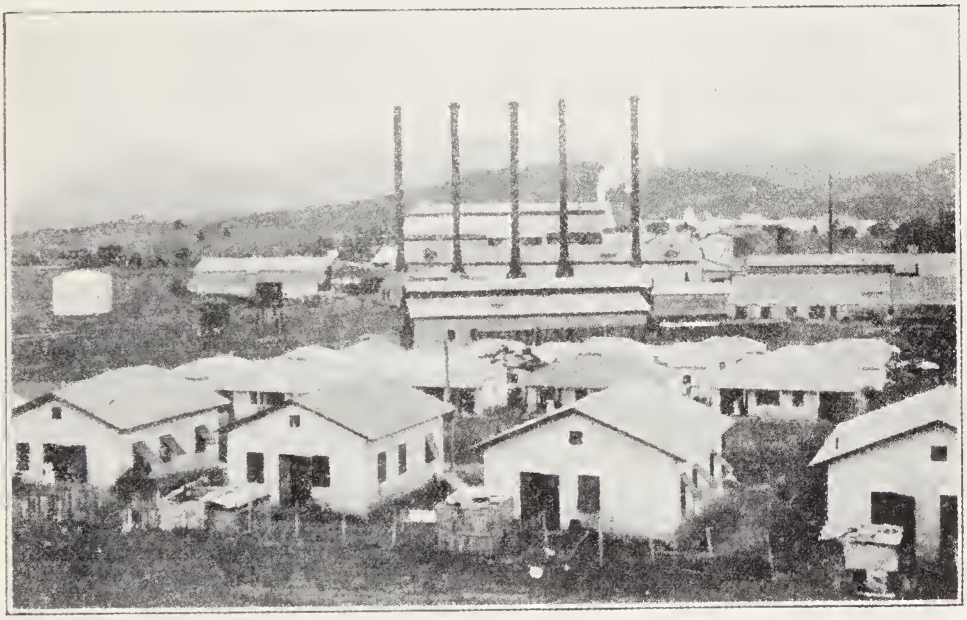
[35] Carroll, Henry K., *Report on the Island of Porto Rico* (1899), pp. 714-21, 728-30, 745-47, and 757-62; Iglesias Pantín, Santiago, *Luchas Emancipadoras,* pp. 97, 219-45.

During the last quarter of a century, the movement has gathered strength in the political field, where labor organizations form the background of the powerful Socialist party. But the unions have not been able to surmount the handicaps of an overcrowded labor market and the poverty of their members so as to win signal victories by direct action. Wages have risen in the organized trades, but probably not much faster than in unorganized occupations. The working day has been shortened by agreement or, in case of public contracts, by legislation. When the cost of living mounted rapidly during the war, an agitation, accompanied by strikes among planta-



SUGAR MILL AND MILL WORKERS' HOUSES

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[36] Weyl, Walter E., *Labor Conditions in Porto Rico,* United States Bureau of Labor, *Bulletin* No. 61, November, 1905, pp. 807-13.

tion laborers, succeeded in forcing up wages to meet this new condition; but it proved impossible to maintain them at the higher level when prices receded after the boom. These plantation strikes were accompanied in some instances by intimidation, murder, cane fires, and other forms of lawlessness and violence, not infrequently associated with such waves of agitation among great bodies of half-organized and ignorant workers.

In 1914 and 1926, strikes in the principal cigar factories of the Island failed to win their objective, and are said partly to account for the action of the largest of the tobacco corporations in transferring most of its manufacturing from the Island to the mainland. Waves of labor agitation, marked by strikes, rise and subside as if they were the result of a psychic contagion. In most cases, however, they represent impulsive resistance to some worsening of the condition of the workers and not infrequently accompany one of those general depressions that are liable to affect, from time to time, a relatively small and isolated community whose prosperity is largely dependent upon one or two staple crops. It is not strange, therefore, that they have had little observable effect upon the material condition of the working people. The main accomplishments of the labor movement have been achieved through political action.

These accomplishments, which many Islanders not affiliated with labor unions have helped to realize, are the formation of the labor or so-called Socialist party, powerful enough to make its influence felt in both legislation and public administration, and the enactment of a considerable body of laws for the protection of workers and the promotion of their interests. The Organic Act of 1917 provides for the Department of Agriculture and Labor, which includes a Labor Bureau. Officials of this Bureau inspect workshops and factories, gather wage and price statistics, and investigate housing conditions and other matters of interest to the laboring population. In performing these functions, the Bureau is hampered by inadequate appropriations, and for this reason the value of its statistical work suffers from lack of continuity and of a consistent program, from insufficient checking of field data, and from too sketchy presentation of results.

Among the more important labor statutes, which are modeled for the most part upon legislation in the United States, are those regulating the employment of women and children, prescribing the payment of wages in cash, enforcing the collection of wages improperly withheld by employers and providing for safe scaffolds. The Organic Act specifies that eight hours shall constitute a day's work of laborers and mechanics employed upon public works, and forbids the employment of children under 14 years of age in occupations injurious to health or morals or hazardous to life or limb. The administration of these laws, as well as of the Insular Immigration Act, is entrusted to the Labor Bureau. Two independent commissions created by special statute, respectively mediate industrial disputes and administer a workmen's compensation law.

School of Tropical Medicine

CHAPTER III

PUBLIC HEALTH

Economic and social conditions in Porto Rico cannot be portrayed merely by a statement as to wages and food consumption and a description of housing and living conditions. To round out the picture, it is necessary to know something of the health situation in this tropical island. The impoverished state of the masses is in no small measure responsible for the prevalence of disease, and in turn disease and ill health react directly upon economic conditions. This chapter, therefore, deals with health conditions, efforts toward improvement, and the vital relationship between health and economic conditions.

While malnutrition and disease were recognized under the Spanish régime as basic twin evils, and, although a Board of Health was in existence, no vigorous public health campaign appears to have been undertaken. One of the first tasks of the military government in 1899 was to grapple with the problem of disease. On June 29, 1899, a Superior Board of Health was organized and entrusted with the sanitary supervision of the Island.[1] During the 17 years following the establishment of civil government, the health office was in charge of a nonpolitical bureau under a director reporting to the Governor. The Organic Act of 1917, however, created a Department of Health, coordinate with the other executive departments of the government under a Commissioner who is a member of the Executive Council. Most of the municipalities also maintain public hospitals and dispensaries for the needs of the poorer classes. The United States Public Health Service and the Rockefeller Institution have also co-operated with the Insular government in its effort to better health conditions on the Island.[2] A beautifully housed School of

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[1] *Military Government of Porto Rico*, Appendices to the Report of the Military Governor, 1. Superior Board of Health, Washington, 1901, pp. 12-13.

[2] For an excellent account of an important phase of this co-operation, see the uncinariasis report of Doctors Ashford and Gutierrez, published in 1911, Senate Document 808, 61st Congress, 3rd Session.

Tropical Medicine at San Juan, created by act of the legislature in 1924, and supported by approximately equal appropriations from the Insular government and from Columbia University, has already become a clinical and research center of world-wide significance. It is closely affiliated with the Insular Department of Health and co-operates with the latter in research on problems in the fields of nutrition, bacteriology, pathology, parasitology, mycology, and clinical medicine.

Insular health appropriations, which amount to over $1,250,000, come next in importance to those for education and public works—the latter covering one phase of health work, namely, that of public sanitation. The expenditures include considerable sums for the maintenance of such social welfare institutions as a blind asylum, a charity school for boys and girls, a tuberculosis sanitarium, a hospital for the insane, and a leprosy station.[3] Recently a system of Insular district hospitals has been established in addition to those maintained by municipalities. The latter spend directly and indirectly upon public health sums comparable to those of the Insular government.[4] Present expenditures are three times as large as they

A MUNICIPAL HOSPITAL
(Cost $22,000)

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[3] See Governor's *Report*, 1929, p. 42.

[4] See Chapter VI, p. 149.

were ten years ago, and five times as great as they were twenty years ago.

The Department of Health maintains a biological laboratory which makes biological and other tests, a chemical laboratory which has charge of food inspection; and an X-ray laboratory. Separate bureaus under competent physicians deal, respectively, with plague prevention, malaria control, social medicine, rural sanitation, health and sanitary engineering, and health education and vital statistics. The Bureau of Social Medicine conducts prenatal and baby clinics and antituberculosis clinics in the two largest towns, as well as an antisyphilitic clinic in San Juan. Closer co-operation with the health work of the municipalities has been established by the organization of so-called municipal health units, which include a staff of visiting nurses. Since 1926 health education has received a stimulus from the organization of institutes for rural teachers, conducted jointly by the Departments of Education, Health, and Agriculture, and designed to carry the gospel of health preservation and domestic food production through the teachers to both parents and pupils.

I. PREDOMINANT DISEASES

Porto Rico's health problem is partly peculiar to the Island and partly shared with other tropical and densely populated countries. Great progress has been made in controlling epidemic diseases throughout the tropics and especially in the Caribbean area during the past 30 years. Porto Rico has profited by this general movement as well as by an unusually energetic local health administration. One of the first tasks undertaken by the military government in 1899 was to vaccinate virtually every person in the Island, thus practically eradicating smallpox, which, albeit in a milder form than in the North, had been an ever-present scourge. Almost simultaneously the demonstration by American medical officers in Cuba that yellow fever was transmitted by mosquitoes and the development of methods for its prevention banished the fear of another virulent enemy that had periodically visited Porto Rico in the past. Before the military authorities relinquished control of the Island in 1900 Lieutenant (now Colonel)

Bailey K. Ashford, an American medical officer in Ponce, had proved that the hookworm produces the all-prevalent anemia which incapacitated the country people for regular labor, and methods of curing this disease followed by measures for its ultimate eradication through sanitary control were adopted. Therefore, smallpox and yellow fever are no longer dreaded, and neither accounted for a single death the last year reported. Today, so far as quarantinable and contagious diseases are concerned, the Island is well protected. Its health problem lies in another direction.

Measured by the number of deaths, the principal diseases in Porto Rico were in 1927-28:

	Number of Deaths	Percentage of all Deaths
Diarrhea and Enteritis[5]	6,461	21.8
Tuberculosis[6]	3,607	12.1
Malaria	1,861	6.2

Fatalities, however, do not measure the true disease burdens of the Island, and uncinariasis, which is credited with only 1.6 per cent of the total deaths, as reported in official records, constitutes one of the principal health handicaps of its people.

The following table shows the mortality from these three diseases and uncinariasis, and from all causes, in the Island as a whole, in the municipalities containing the three largest cities, and in three groups of eight municipalities each, having respectively the largest proportion of their cultivated area under the three principal crops. Crop areas have been taken as the basis of classification not because the predominant form of agriculture is an important factor determining the prevalence of these diseases, but because they conform roughly with the outstanding topographical and climatic divisions of the Island. All the cane municipalities lie in the lowlands on the sea coast, and contain a relatively large colored population. The coffee municipalities are in the mountainous interior. The tobacco municipalities, while lying inland and

[5] Including typhoid.

[6] In all forms but chiefly pulmonary.

occupying upland country, are rather more open and accessible than their coffee-planting neighbors:

COMPARATIVE DEATH RATES, BY PRINCIPAL DISEASES, FOR AREAS INDICATED, 1927-28[a]

(Rate per 100,000 of indicated population)

District[b]	Population	All Diseases	Diarrhea and Enteritis	Tuberculosis	Malaria	Uncinariasis
The Island as a whole	1,454,047	2,004	444	248	128	33
Urban	218,840	2,423	488	417	126	21
8 Cane Municipalities	101,942	2,289	575	237	221	20
8 Coffee "	166,581	1,526	298	134	10	62
8 Tobacco "	167,689	2,068	500	246	32	41

[a] Compiled from *Report* of Commissioner of Health, 1927-28. Vital Statistics, Tables 2, 6, and 24. Population data are for June 30, 1928.

[b] The municipalities making up the several districts are as follows—*Urban:* San Juan, Ponce, Mayagüez. *Cane:* Santa Isabel, Vieques, Ceiba, Salinas, Fajardo, Naguabo, Luquillo, Yabucoa. *Coffee:* Maricao, Las Marías, Lares, Utuado, Ciales, San Sebastián, Adjuntas, Jayuya. *Tobacco:* Cidra, Comerío, Cayey, San Lorenzo, Aibonito, Caguas, Naranjito, Barranquitas.

These four diseases are of germ or parasitic origin and are obviously regional to the extent of occurring with greater frequency in certain districts than in others, although they do not exhibit narrowly centered foci. Intestinal disorders of the diarrhea and enteritis group, the varieties of which are not always distinguished accurately in any mortality statistics, though the group itself is defined with reasonable precision, are the most uniformly distributed, as they are the most common cause of death. By far the larger number of fatalities from this cause occur among infants and very young children. The prevalence of these diseases in the higher age groups, where they are to a large extent water borne,[7] is explained partly by the fact that the overpopulation of the Island has forced settlement to the very summits of the mountains, as well as to every valley and along every stream. All the filth is thrown or washed into the drainage channels; the household laundering is done on the bank; domestic animals spend part of the day in the cooling water. Sanitary precautions are seldom observed. These water-borne diseases are thus disseminated.

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[7] The studies of *Diarrhea and Enteritis in Porto Rico*, by Earle B. Phelps, Professor of Sanitary Engineering at Columbia University, and Jorge Víctor Dávila, engineer of the Bureau of Sanitary Engineering of the Department of Health of Porto Rico, published in the *Porto Rico Review of Public Health and Tropical Medicine* in March and April, 1928, have been followed in this summary. These studies illustrate the co-operation between the School of Tropical Medicine and the Insular Health Department, mentioned above.

Tuberculosis and malaria are seen to be primarily city and coastland diseases. In fact, such malaria as occurs in the highlands is mostly carried there from the cane fields by returning harvest hands. The tuberculosis death rate for Porto Rico as a whole is 3.5 times as high in the towns as in the country, and it is much more common in the densely populated lowlands than in the interior highlands, where it takes a comparatively light toll of lives.[8] On the other hand uncinariasis, or the hookworm disease, has its home in the coffee country, where most of the acute cases still surving in the Island are found.

II. REMEDIAL MEASURES

The low income of the average Porto Rican family makes medical care largely a community burden. Outside of the principal towns the Island supports few physicians.[9] Moreover the most prevalent diseases are of a kind best combated by public sanitation and other organized social measures.

Diarrhea and Enteritis, Including Typhoid. Two-thirds of the deaths from these diseases are of children under two years of age. Such infantile cases are believed to be "of a somewhat different type from the disease of the same name as reported in the higher age groups," which latter, as we have seen, is "to a large extent water borne." Consequently preventive measures for young children differ from those for adults. In case of the former, protection must be sought in the home, and becomes largely a matter of family regimen. Public measures to combat the disease must be mainly educational. But in case of the higher age group, where deaths from this cause are more numerous than from any other except tuberculosis, water purification, either at the source of supply or immediately before using, is clearly the first step to be taken for its prevention. Existing conditions in Porto Rico make it almost hopeless to attempt purifying water at its source, though other public health measures, like building latrines to control uncinariasis, help in this direction. Education may also accomplish something. But the major measure is to supply water for domestic consumption so far as possible from public sources. With this in view water works have been constructed not only by the larger cities but by many comparatively small towns and villages as well.

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[8] Townsend, Surgeon J. G., *Tuberculosis Survey of the Island of Porto Rico*, U. S. Public Health Bulletin No. 138, p. 54.

[9] Compare Appendix A, Section V.

These improvements probably account for the fact that the death rate from intestinal diseases is lower in the large cities than in the neighboring lowland municipalities. But the original source of supply of many of these systems is so contaminated, especially where surface water is used, that some form of sterilization, such as chlorination, is imperative before distribution. Where city water is obtained from wells, as it is in several instances, the danger of contamination is much less, though not entirely absent. Unless a public water supply is pure, it naturally disseminates disease instead of protecting against it, and this may have occurred occasionally in Porto Rico. If the time comes when it is possible to pipe pure water along the more thickly settled section of improved highways, another step will be taken toward controlling these

City Filtration Plant
(Cost complete $137,765)

maladies. Their prevalence is an argument in favor of the plan often advocated in Porto Rico of gathering the peasants now living in cabins scattered among the mountains, in villages. A carefully guarded water supply might well be required by law in all important plantation camps. As it is, serum treatment is promptly resorted to by the Health Department to check typhoid epidemics.

Tuberculosis. In contrast with enteritis, tuberculosis draws its toll largely from men and women in the prime of life. Reversing the experience of the continental United States, mortality is higher for women than for men and is much higher for negroes than for whites. We have just seen that it is also essentially a disease found in cities. The following statement reveals the gravity of the problem:

> Tuberculosis in Porto Rico is a public health problem of shocking magnitude, the mortality from the disease being higher here than in any country of the civilized world for which accurate figures are available. The rate for the Island is approximately three times that of New York, where the disease is treated as a very serious public health problem. Furthermore, the statistics for the four-year period, 1923-27, indicate that conditions are growing worse rather than better. It is possible, however, that the recent recorded increase in tuberculosis deaths may be due in large part to better diagnosis and more careful reporting. But there is little comfort in this interpretation, for even if it is assumed that the rate is stationary, we must recognize the fact that the incidence is alarmingly high.
>
> The problem concerns the cities primarily, the rate for the urban population being three and a half times as high as for the rural, though the contrast may not be actually as great as the figures indicate, on account of the less accurate death reports from the rural districts. The fact that *the rate for the towns of Porto Rico is practically five times that of New York City,* is a fair index of the gravity of the situation.[10]

A leading Island authority thus summarizes what appear to be the principal causes for the growing ravages of this disease:

> Desperate economic conditions create overcrowding and very low standards of living in the poor *barrios* of all the

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[10] D. Costra Mandry, M. D., "Epidemiology of Tuberculosis in Porto Rico," *Porto Rico Review of Public Health and Tropical Medicine,* Vol. IV. July, 1928, pp. 5, 13.

towns. Overcrowding is undoubtedly one of the most important predisposing causes of tuberculosis in Porto Rico.

Lack of proper food is another cause. Large families and extremely low incomes keep hundreds of thousands of people continually on the verge of starvation.

Recent migration of the peasants from the mountain regions—where they had lived for a long time in comparative isolation—to the urban centers of population, especially after the Great War, has been set forth as a theory to explain the increase in mortality from tuberculosis during the past few years.[11]

With an average death rate from tuberculosis reported to be higher than in any other civilized country of which we have accurate record, Porto Rico faces a tremendous health problem, even in dealing with this single enemy. The Insular tuberculosis sanitarium at Rio Piedras can take care of only a small fraction of the more serious cases. It is not always possible to segregate tuberculosis patients in the crowded wards of municipal hospitals. An overwhelming majority of the numerous sufferers from this disease are, therefore, living with their families. The danger of their communicating it to others is far greater in the towns than in the country, but it is omnipresent. The only two measures likely to check immediately its spread are segregation and proper care and diet, which are beyond the means of either private or public effort to provide. Its relatively less frequent occurrence in the coffee regions, although coffee workers are supposed to suffer more than other classes of the population from undernourishment and hookworm debilitation, points to improper housing and congestion as primary reasons for its prevalence.

Tenement reform and city planning would accomplish something in this direction in the towns. At present all houses that are erected in Porto Rico must be passed by the Department of Health. A provision upon which the Department insists before granting a permit to erect a dwelling for occupancy is that permanent ventilation shall be installed through the windows and doors. The thatch roof, bark wall huts that were formerly the common habitation of the poorer country people are said to offer less encouragement to the spread of tuberculosis than modern cabins of boards and corrugated iron. This is because they admit fresh air, which old superstitions of miasma and evil influence cause the people to keep out of their houses at night, so far as possible, by closing tightly every door and window opening.

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[11] José Rodríguez Pastor, M. D., in *Porto Rico Review of Public Health,* Vol. IV. April, 1929, p. 434.

Strange as it may seem, therefore, in a land of perpetual spring or summer, teaching the benefits of fresh air is still necessary in combating this disease. Its contagious character is already understood. Indeed, in former days it was customary to burn the belongings and sometimes even the hut of its victims. Probably, therefore, little popular opposition will exist to the hospitalization of sufferers from tuberculosis as rapidly as the Insular revenues permit, and only through some such measures are its ravages likely to be checked.

Malaria. Malaria probably stands second only to uncinariasis among chronic maladies which lower the vitality and the earning power of the people. A survey of the Island made in 1919 under the auspices of the International Board of Health by the Insular government, aided by money and experts supplied by the Rockefeller Foundation and by some sugar corporations, indicates that in the coastal plains infection runs to at least 25 per cent of the population, and in some labor colonies near or upon sugar plantations the parasite rate reaches 70 per cent. Ponce, the second largest city in the Island, with about 50,000 people, was found to be heavily infected. "The portion of the city bordering on the pasture lands and the cane fields had a rate of 17.4; the suburban zone, including houses which stand along main highways, a rate of 29.2; while the colonies in the field have a rate of 25.0."[12]

That progress in the control of malaria is very slow is indicated by the fact that the deaths for the three successive years ending June 30, 1928, numbered, respectively, 1,755, 2,101, and 1,861. While malaria cannot be completely eradicated, it can be very greatly reduced by the reclaiming of swamp lands, by controlling the breeding places of the anopheles mosquito, and by removing the population, where possible, from points of maximum exposure to places of safer residence. Work is now being vigorously prosecuted along all these lines and the success attained within the limited areas already under more or less effective control are of hopeful augury. In the Fajardo district sampling tests made in January, 1927, showed spleen and parasite rates respectively of 5 and 2.5 per cent inside the control zone and 13.2 and 6 per cent outside that zone.[13]

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[12] Earle, Walter C., M. D., *Malaria Surveys in Porto Rico*, Vol. I, No. 4, October, 1925.

Uncinariasis, or Hookworm. Uncinariasis is not ordinarily a fatal disease. For that reason, perhaps, it is the more stealthily dangerous, since it gradually lowers the body's resistance and thus enables more immediately deadly maladies, particularly tuberculosis and influenza, to take their toll. It partially incapacitates its victims for labor and often reduces their earning capacity by as much as 50 or 75 per cent. The parasites also actually rob the individual of his food, thus making the problem of undernutrition the more serious.

In spite of all the efforts that have been made to eliminate the hookworm disease, progress has been comparatively slow. The percentage of the population affected may be almost as great as ever; but the severity of the disease has fortunately been considerably mitigated, and the acute cases common everywhere in the Island 30 years ago are rarely encountered today.[14] Deaths from this cause fell from 7,369 in 1899 to 483 in 1928. As late as 1925 Governor Towner in his annual report stated the problem in the following words:

> It was long ago pointed out that 90 per cent of the rural population of the Island is suffering from uncinariasis. This is not less true today. Indeed, we can now go further and say that 50 per cent of the urban population, at least in the smaller towns, has the disease. I do not mean that all these people are anemic, for many of them are not, but they harbor some of the parasites. We have now examined the people in several towns, including Arecibo and Aguadilla and the infection has always run about 50 per cent. During the year we made an examination of the school children of Ponce (the second largest city on the Island) and found 25 per cent of them infected. A survey of the town of Moca is just being finished and 90 per cent of the inhabitants of this town of 1,600 have been found with uncinariasis.

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[13] Commissioner of Health, *Report*, 1927, p. 89.

[14] Compare Military Government of Porto Rico, *Report*, Appendix I, The Supreme Board of Health, p. 98.

The original procedure against the hookworm was a rather drastic treatment which freed the patient temporarily from the parasites, but left him exposed to reinfection from the human excreta encountered everywhere in a country whose peasants went barefoot and had never learned to use latrines. Nowadays, among the subjects taught in the teachers' institutes, previously mentioned, the prevention of uncinariasis occupies a prominent place. Teachers are shown by means of specimens, microscopic slides, graphs, and pictures, the life history of the parasite, how the disease is contracted, its symptoms, its cure, and its prevention. This instruction descends to such homely methods of demonstration as taking apart, rebuilding, and explaining a model latrine, constructed according to departmental specifications and bearing a placard stating: "In Order to Prevent the Spread of Disease, Let No Man, Woman, or Child Fail to Use the Latrine." The Bureau of Rural Sanitation annually administers about 140,000 hookworm treatments and secures the installation of some 20,000 new latrines in rural districts.

Other Diseases. No other single disease stands out in the Island's health statistics as prominently as the four just mentioned. Broncho-pneumonia, bronchitis, and pneumonia take a large toll of life. Statistics of venereal disease are so inadequate as to throw little light upon true conditions. In 1926-27, 353 cases of syphilis were reported and 227 deaths were registered as due to that disease. The same year, however, 1,453 cases were treated in the antisyphilitic clinic of San Juan, of which 24 were children.[15] Conditions are, perhaps rather loosely, reported to be similar to those in the British West Indian Islands where, according to a recent report "a very considerable percentage of the population is infected with hereditary or contracted syphilis.[16]

The control of the most prevalent diseases is primarily a matter of sanitary engineering. The Executive Council of Porto Rico authorizes loans to cities for the construction of public works designed to supply the residents with pure water and with sewers. Such works are usually under the immediate supervision of the Commissioner of the Interior. Permits for new buildings and for the installation of plumbing and sanitary fixtures are issued upon the approval of plans by the Bureau of Sanitary Engineering of the Health Department, and the Bureau of General Inspection, of the same department, inspects buildings and plumbing, as well as milk, food establishments, and slaughter-houses. The Bureau of Plague Prevention not only keeps a close eye on the rat and flea population, but also endeavors to enforce a law for rat-proofing buildings.

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[15] Commissioner of Health, *Report*, 1926-27, pp. 53, 160, 172.

[16] Wood, Hon. E. F. L., M. P., *Report on a Visit to the West Indies and British Guiana*, p. 58.

A primary difficulty is the lack of technically trained personnel for the maintenance and operation of sanitary systems. After water-works, sewers, and similar services have been installed under the supervision of the Insular Department of the Interior, they are left to be operated by the local authorities. Chlorination plants have been installed and allowed to fall out of repair and become useless, because no one knew how to manage them. Costly sewer systems have been constructed without a practicable outlet. Most of the work of public sanitation is in direct charge of well-qualified physicians, who have carefully studied conditions. But there is a dearth of sanitary engineers—men with specialized training and experience in putting into operation the physical machinery by which water supplies and other channels transmitting disease may be rendered innocuous.

As a rule people of all classes in Porto Rico co-operate readily with the authorities in measures that promise them physical betterment. They do not shirk inoculations against disease or oppose, except through apathy or ignorance, sanitary regulation. They have taxed themselves heavily for water-works and sewers, though they have not always understood how to convert the financial sacrifice this implies into practical benefits.

From this brief presentation it is clear that the battle for health is far from won. Real progress has been made in combating certain diseases, but others are on the increase. General death rates are unsatisfactory indicators of changing sanitary and health conditions, yet they are not without value here. An eminent authority on tropical diseases, intimately familiar with Porto Rico, summarizes the rates and their evidence over the last four decades as follows:

> There was a big fall in the death rate in the first three years of United States occupation. From around 40 in 1899 it came down to about 25 in 1902. But in the absence of exact figures for previous years, and with the knowledge that the terrible hurricane of 1899 destroyed coffee and banana plantations, it is difficult to say how much this fall was due to the change in régime and how much to other factors. Official statistics show the interesting fact that while the rate was 31.5 in 1888 and 36.7 in 1898, it was but 28.3 in 1892 and only 24.6 in 1893. In other words, the mortality was very little higher at that time than it is today. If we compare the average rate for the period of 1888-98, 29.6, when the American occupation began, with that of the past ten years, 23, we find that the difference is less than seven points.

Annual figures as published in the Governor's Reports are as follows:[17]

1901	36.7	1911	23.4	1921	22.3
1902	24.8	1912	24.0	1922	22.5
1903	25.7	1913	22.3	1923	21.1
1904	22.6	1914	18.4	1924	18.7
1905	22.7	1915	19.7	1925	22.4
1906	25.3	1916	21.9	1926	22.8
1907	26.2	1917	28.4	1927	23.3
1908	22.5	1918	27.7	1928	20.4
1909	20.9	1919	31.7		
1910	22.1	1920	23.2		

The high rates for 1917, 1918, and 1919 tell the story of the influenza epidemic. In tracing the trend of the data it should be recalled that for 1898, the year preceding the San Ciriaco hurricane, the rate was 36.7, and for 1899 close to 40. The drop in 1902 apparently represents real progress, but since then improvement has been slow. However, these figures do not show changes in the general health of the people except in so far as these changes are mirrored in the number of fatalities. Neither do they show how the rates themselves have been affected by changes in the composition of the population, or by greater accuracy of the basic data.

Comparisons of rates for different countries are, of course, unsatisfactory; but when read in conjunction with a five-year average (1921–25) for Chili of 30.4, Egypt 25.4, India 24.9, Japanese in Formosa 24.0, and Roumania 22.2, these Porto Rican rates gain perspective. And when compared with a similar average of 9.7 for South Africa, 10.2 for Canada, 11.9 for Continental United States, 11.3 for Denmark, 9.4 for Australia, and 8.7 for New Zealand, they indicate that much work remains to be done.

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[17] The quotation is from a private memorandum, and the tabular data from the *Annual Reports* for 1925, 1927, and 1928. Five-year averages are given in the Introduction.

III. ECONOMIC IMPROVEMENT IN RELATION TO HEALTH

The slowness of the progress that has been made in combating disease is directly attributable to economic factors; and it is apparent that the health problem can be really solved only as the standard of living of the people is raised. Poverty affects the health problem in two ways: not only are the masses of the people unable to afford medical treatment, but inadequate nourishment and an unbalanced diet contribute directly to disease.

> This unvarying dietary, year in and year out, generation after generation, continued through poverty and an acquired taste, is markedly deficient in fat soluble A vitamin, the fresh animal proteins, green vegetables, and leafy plants. The result is a glandular insufficiency with increased lowering of bodily resistance, pallor, apathy, additional burdens to carry along with uncinariasis and malaria.[18]

On the other hand, tuberculosis, malaria, and uncinariasis lower the efficiency of workers and thereby constitute an economic handicap that stands in the way of a better living standard.

These conclusions are in line with those of the tropical diseases authority, quoted in Section II, above, who says:

> . . . The problem here is fundamentally economic and not sanitary. No doubt improvements in water supplies, sewage disposal, etc., going on now in several of the large towns will have an appreciable effect, as will also the systematic work in rural sanitation (education and privy building) being carried on in connection with the hookworm campaign. But I fear we shall not see any great fall in the death rate so long as (1) there is an excess of labor with a big proportion of the people unemployed a great part of the year;

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[18] Townsend, J. G., "Tuberculosis Survey of the Island of Porto Rico," *U. S. Public Health Bulletin,* No. 138, December, 1923, p. 43.

and so long as (2) food costs more here than in the United States, while the wage of the common laborer averages less than a dollar a day. Under such conditions insufficient food, an unbalanced diet, and crowded housing will remain, and tuberculosis, malnutrition, intestinal and other infections will take their toll. The death rate from tuberculosis has already reached a point nearly three times that of New York and the increase is so marked Dr. Haven Emerson predicted recently a decimating epidemic if radical preventive measures were not taken. (The rate in the *towns* of Porto Rico is five times that of New York City.) Isolation of advanced and open cases alone would go far to meet the critical situation, but there are altogether on the Island only about 300 beds exclusively for the tuberculous, whereas at least 3,000 are needed. The outlook is, therefore, anything but encouraging.

And when we turn to less lethal infections like malaria we are not greatly cheered. Malaria, prevalent over the entire coastal zone, can be controlled or even eradicated in the tropics as experiments at Panama and elsewhere have shown. But the cost for a poor agricultural people may be prohibitive. A prominent authority not long ago made the statement that if the entire Insular government budget, $11,000,000, were put into mosquito eradication he doubted if the amount would be adequate. However, local undertakings in which the Rockefeller Foundation is co-operating are giving promising results, so much so that the malaria outlook is not nearly so concerning as that of tuberculosis; it should be pointed out, however, that the sugar industry, the backbone of the Island's commercial progress, not only fosters anopheline mosquito breeding, through irrigation, but also aids in the spread of other infections, notably schistosomiasis, a worm parasitic disease; moreover, the use of the bulk of good fertile land for sugar necessitates the importation of foodstuffs at high cost. In other words, Porto Rico, though an agricultural island, has the same classes of health problems as many of the industrialized districts of the temperate zone. Not only are there crowding, costly food, and social evils associated with transient employment, but there are industrial hazards in the form of malaria and other infections associated with irrigation systems and crowding.

The crucial factor in the whole discouraging situation is the excess of population. It is difficult to see how the conditions of the laborer can be much improved so long as the supply of labor is greater than the demand. Attempts have been made at legislation in the way of hours, wages, land holdings, etc., but, as might have been expected, they have proven entirely ineffective. Large public health undertakings and development of an educational system to include practicable vocational training and a more thorough grounding in personal hygiene—the only nonrevolutionary suggestions I have to offer—may help a little toward a solution of the problem. Better health will certainly improve economic conditions. The converse is even more certain. The two things are interdependent.

Though solution of the health problem is primarily dependent upon the improvement of general economic conditions, this does not mean that the problem should not be attacked from both ends. Not only does an improvement in general economic conditions contribute to the solution of the health problem, but it is equally true that improvements in health conditions, such as have already occurred in connection with certain diseases, contribute directly to increased economic efficiency and better living conditions.[18]

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[18] See also Chapter V, page 107.

CHAPTER IV

EDUCATION

The upbuilding of Porto Rico's public school system by the Insular Department of Education has been a noteworthy development of the last 30 years. While education is an imponderable factor and its general significance difficult to measure, it cannot be doubted that economic progress is conditioned at every stage by the knowledge possessed by the masses of people. Hence an account of the developments that have occurred in this field and a discussion of the present status of educational facilities and methods is essential to any adequate appraisal of the Porto Rican situation as a whole.

It has not been deemed necessary for the purposes of the present survey to make an extensive first hand investigation of the entire educational system of the Island. Four years ago a commission of experts from the mainland, acting under the authority and with the financial aid of the Insular government, made a very extensive survey of the public educational system of Porto Rico, and its findings, which have been published in a report of 453 pages,[1] carry much authority. We have drawn heavily upon this report for the material here presented, but have supplemented it by a first hand investigation of the rural schools of the mountainous regions and by a special survey indicating the extent to which the public school system has qualified pupils to occupy higher positions than those held by their parents. It may also be added that the Director of this Survey was Director of Public Instruction in the Island from 1899 to 1900, and has thus been able to appraise present educational conditions in the light of those obtaining in the early days of the American occupation.

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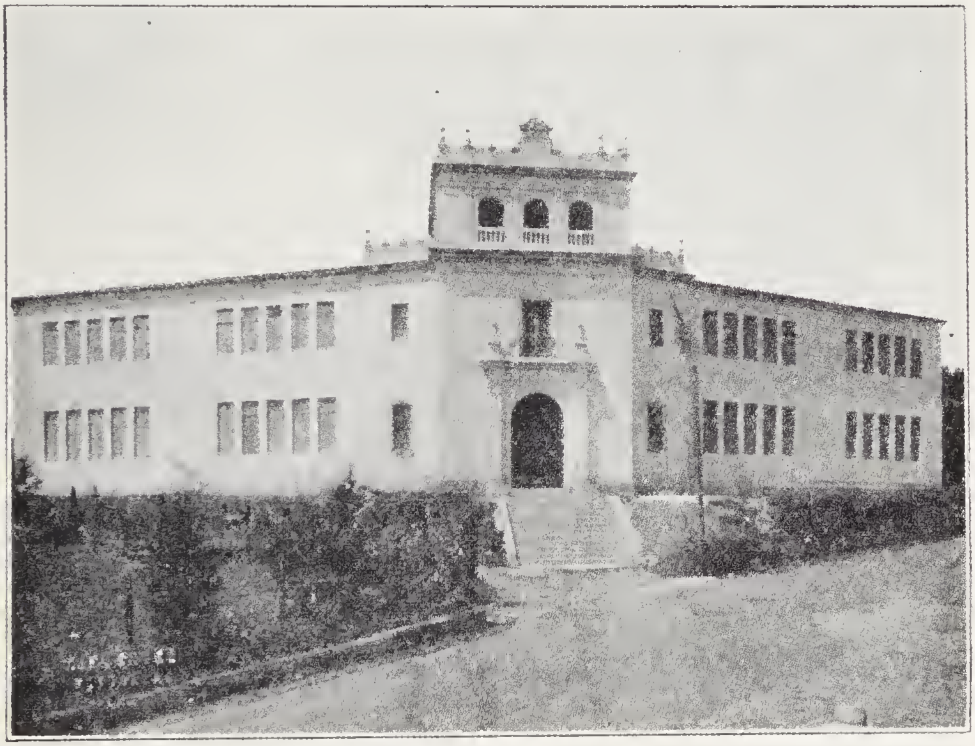
[1] *Survey of the Public Educational System of Porto Rico;* Studies of the International Institute of the Teachers College, Columbia University, No. 8, 1926.

I. THE DEVELOPMENT THAT HAS OCCURRED

When Spain relinquished control of Porto Rico in 1898, 380 public schools for boys and 138 public schools for girls with a total enrollment of somewhat less than 45,000 pupils were reported in the Island. Not a single public school building was in existence and classes were usually heard in the residence of the teacher. Fees were charged except for the poorer children who received only a minimum of instruction. Today the enrollment is almost 221,000 of whom well toward 7,000 are taking high school courses. Porto Rico also supports a university with a normal college and a separate school of agriculture and engineering. One thousand and thirty-five school buildings have been erected and 1,109 are rented. These provide nearly 4,500 classrooms. The total expenditures for primary and secondary education have risen from less than $186,000 in 1898 to $5,834,468 in 1928. The proportion of



Town School Building
(Coffee Country)

children between 5 and 20 years of age attending school rose from 30 per cent in 1910 to 39 per cent in 1920 and 42 per cent in 1928.

To quote from the report of the Educational Survey Commission just mentioned:[2]

> There are still some communities without educational facilities, but to these communities schools are being extended rapidly. The dynamic quality of the schools and the atmosphere of optimism and enthusiasm that everywhere prevail are impressive. Throughout the Island there exists a devotion to education and a common readiness to make sacrifices in order that it may be provided in full measure which are scarcely matched in any other American community. Persons of a high type are entering the teaching profession, and the standards of professional preparation are constantly advancing.
>
> The primary effort of the public schools thus far has been directed toward the accomplishment of the original purposes of the early educational authorities. The schools have successfully combated illiteracy, and they have raised appreciably the standard of citizenship.

Two industrial schools now form part of the public educational system. One of these occupies part of a rather imposing graded school building in San Juan and gives courses in mechanical drawing, wood working, printing, electricity, plumbing, needle work, painting, music, and embroidery. This school has an enrollment in its day and night courses of 702. The second school, which has recently been started in Ponce, gives courses in printing, plumbing, and electricity and has an enrollment of 125. Some trade instruction is also given in other schools, particularly in the new rural school units described below, where boys are taught rough carpentry and shoemaking and repairing.

Progress has also been made in agricultural education. Seven teachers of agriculture have been assigned to supervise this work in the rural schools, 1,844 of which give some garden and farm instruction. Boys' clubs have been organized and school gardens and tree nurseries have been started. High school courses in agriculture are now given at several places, and centers have been established in some rural schools for over-age children where maturer pupils are taught how to raise vegetables, poultry, rabbits, and hogs, and to care for bees. Under a special appropriation, made by the legislature two years ago, six "second-unit rural schools," which have, in addition to the usual country school plant, work shops, a few acres of garden land, poultry yard and sheds, and some live-stock, have been established in as many selected municipalities. These institutions, which are designed to pioneer the way to a larger development, make it their aim:

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[2] *Ibid.*, pp. 27-28.

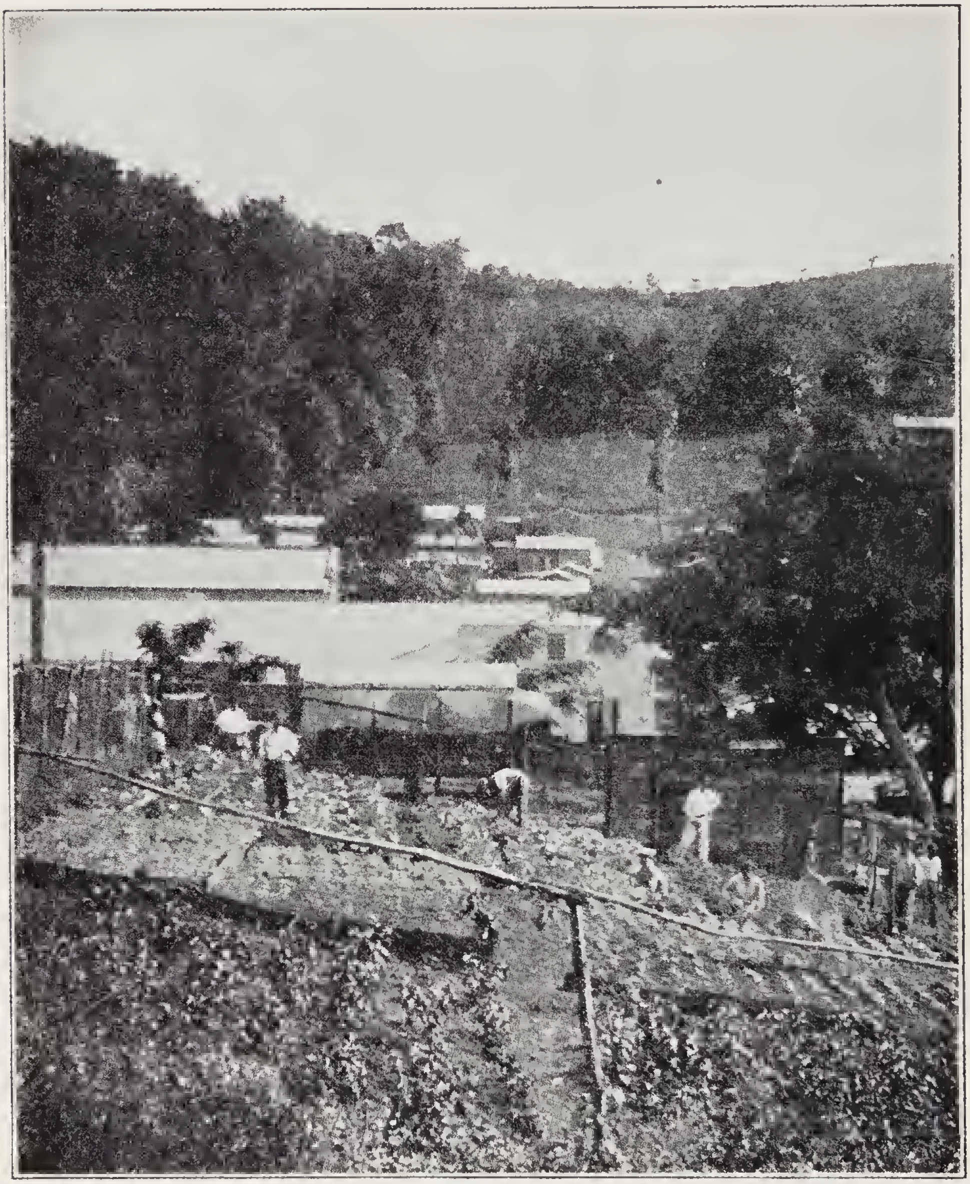
Hull Photo

Garments and Furniture Made by Public School Pupils

(1) To raise standards of living in the rural communities; (2) to improve the productive capacity of the island; (3) to carry out a program of social and health instruction based on

the needs of the people in the rural centers; and (4) to improve the life and home conditions of the people.[3]

Manual arts is a compulsory subject in the eighth and ninth grades. Home economics courses for girls are given in the grammar grades in some municipalities where the local authorities pay the teachers' salaries. In addition, regular courses



Hull Photo

PART OF A PUBLIC SCHOOL GARDEN

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[3] Vizcarrondo, Francisco, *Education in Porto Rico*, Vol. 4, p. 88.

are provided in the eighth grade and in the high schools. Altogether five or six thousand girls are learning something about cooking and making their own wardrobes.

Private schools, all of which are under government supervision, give instruction to rather less than 7,000 pupils. Among these institutions is the polytechnic school at San Germán, where the courses are designed to prepare students for practical vocations and stress is laid upon the dignity of labor.

But this description of accomplishment must not mislead. Educational needs are still great; the situation in the rural communities is nothing short of deplorable. It appears that approximately 97 per cent of the urban children between 5 and 14 years of age are on the school registers, while only about 40 per cent of those in the country districts are registered. Even so, there are not sufficient accommodations for the country children, and about two-thirds of the rural schools operate on the double enrollment system under which the children attend only half of each day. The Educational Survey reported that the rural child probably received less than half as much instruction each year as the city child.

Moreover, only a small percentage of the children attend school for any great number of years. It appears that about 84 per cent of the rural children who enter school stay only to the end of the third grade, and thus receive but the barest elements of even a primary education. It is not surprising, therefore, to learn that the census of 1920 showed that about 61 per cent of the country people over 10 years of age could not read or write, and that 74 per cent of the adult rural population was illiterate.

This unfortunate situation is primarily the result of the poverty of the Island. A representative of the Survey visited over 150 rural schools in gathering material for this report. In each one of them the children were asked whether they had milk, coffee with milk, or plain black coffee for breakfast in addition to other food. In every school visited one or more children had come away from home without any food at all. Here children could be seen emaciated and hungry, pale-faced and thin, barefooted and with their clothes in patches, some with evidence of hookworm, sitting on a school bench trying to learn their r's. Of all the children in the rural schools interviewed, 97.3 per cent had had coffee, but 42.4 per cent had black coffee without any milk. The remaining 2.7 per cent of the children had had *"nada,"* nothing, for breakfast. Only 24.9 per cent of the children had had milk on the previous day.

The investigation revealed that the poverty of the family has a close relation to school attendance. Parents are ashamed to send their children to school because they have no clothes for them. One mother, when asked why her son was not in school, replied that she had no money for clothes, adding, "and I don't wish that they should give me shame." Over and over again fathers would say, in reply to the question why his children were not in school, *"No tengo recursos"* (I have no means).

Popular education continues to be a fundamental public issue. While the masses of the population have great faith in universal education, many members of the upper classes are opposed to educating the rural laborers. In part this is because the cost of such education falls in large part upon themselves as taxpayers; in part it is because they foresee that an educated rural working population, possessed of the suffrage, will ultimately obtain control of the government; and in part it is attributable to the fundamental conviction that an educated rural population may not be willing to devote itself to the crude and simple tasks of the unskilled agricultural laborer. There is even at present the complaint among the landowners that education is driving the *jíbaro* to the towns. One hears over and over again from the landowners: "As soon as a boy learns to carry a pencil behind his ear he considers himself a gentleman and too good for common labor," "If you give them schooling they will all want to be clerks."

Conflicts of educational ideas go to the root of the whole problem of the economic organization of the Island. In a little school near Manatí, the writer observed an excellent school garden, kept up with obvious affection and pride by the children and the teacher. On the plantation where some of these children were living their parents had been told that if they planted a single plant it would be torn out by the *capataz* (foreman). The local school was urging the children to develop home gardens. The local plantation was forbidding their parents the opportunity to plant anything at all. This probably is an extreme case. But it reveals the nature of the underlying conflict in the present-day rural community. The question whether you can have an excellent school system, a well-educated rural population and at the same time have an economic structure that leaves four-fifths of the country people without any stake in the land and without any permanent right to a home, is one that the future alone can answer.

Attention should also be called to the fact that because of the poverty of the rural districts there is little opportunity for the child who has learned to read to avail himself of the benefits of his accomplishments. In talking with the mountain *jíbaro* the question often arose as to the benefit he had received from his schooling. After reflection the almost universal answer was "*Pues nada*" (really nothing). "Do you get a newspaper?" "No." On occasion the *jíbaro* would relate that "*cuando y cuando*" (every so often) he would go to the store and there he would hear some one read a paper. In all of his wanderings over the mountains the writer of these lines found only one *jíbaro* who had ever had a book. "What happened to it?" he was asked. "Saint Felipe [the hurricane] carried it off." "What was the book?" "It was the story of Columbus, and I used to love to read in it."

But in spite of its apparent lack of real bearing upon the life of the common people, the *jíbaro* wants his children to go to school, especially if he has been in school himself. In some way the little schoolhouse is the only sign of hope in the primitive and poverty-stricken rural communities; it is after all the promise of a new day, and so it seems to the poorest of them. Take the schoolhouse out and the rural community in Porto Rico would be hopeless indeed. It is the one center of social activity that is visible in all of Porto Rico and is the chief source for the emergence of democratic ideas in the Island.

II. SPECIFIC EDUCATIONAL PROBLEMS

A number of educational issues in the Island have given rise to vigorous discussion, the chief of which are: (1) Whether English should be taught in the elementary grades; (2) the broadening and enrichment of the curriculum; and (3) the promotion of economic efficiency and higher standards of living by means of education along practical lines.

Methods of English instruction have been changed several times since 1898. At present, all subjects in the first four grades are taught in Spanish, except English, which is taught orally in the first and second grades and from books in the third and fourth. The fifth grade represents a period of transition with half the subjects taught in Spanish and half in English. English is the language of instruction for all subjects from the sixth to twelfth grades, inclusive.

COUNTRY SCHOOL HOUSE

The teaching of two languages not only increases the cost of instruction, but it encroaches upon the time available for other subjects. The Educational Survey Commission accordingly recommended the elimination of English from the first three grades, accompanying the recommendation by the following statement:

> . . . Time is urgently needed for children to develop an understanding of the agricultural and industrial situation of their island. Continuous and prolonged practice should be given to the building of health habits. The nucleus of the primary curriculum of the rural schools should be practical farming, instruction about foods, diet, building construction, homemaking, community life. That the children engage in

these studies is of far greater importance than that they learn to speak haltingly, with a distinctly Latin accent and sound modifications, the English language. Furthermore, there is no probability that for more than a generation to come most of the young people now being trained in the lower grades to read and to speak English will have an opportunity to apply that skill. Only a small fraction of 1 per cent of the Porto Rican people have an opportunity to read English outside of the schools. The rate at which the reading of books, magazines, and newspapers in English by Porto Ricans will be increased is exceedingly low.

Notwithstanding this weighty opinion to the contrary, however, the members of the present Survey incline to the opinion that the teaching of English in the elementary grades should be continued. While the large amount of time given to the study of language tends to perpetuate the mechanical routine that characterized the Spanish schools before the American occupation and that still deadens class work in many mainland institutions, on the other hand, an opportunity to learn English, no matter how imperfectly and inadequately, is one of the magnets that draws the children of the poorer classes to the public schools. To tens of thousands of the disinherited in Porto Rico a knowledge of that language seems to promise—perhaps fallaciously—a better economic future. Popular willingness to make sacrifices for the schools is in some degree due to this pathetic faith. To take English away from the primary grades and confine it to the more advanced courses attended only by the minority, would add one more exclusive privilege to the many already enjoyed by the well-to-do. In a country with Porto Rico's traditions this is of great practical moment.

Moreover, English is the chief source, practically the only source, of democratic ideas in Porto Rico. There may be little that they learn to remember, but the English school reader itself provides a body of ideas and concepts which are not to be had in any other way. It is also the only means which these people have of communication with and understanding of the country which they are now a part. The utility of instruction in English and indeed of education generally has been severely limited by the almost complete lack of books and periodicals among the common people of the Island. The seeds sown by an elementary education, such as that now offered in Porto Rico, can hardly be expected to germinate and fructify into an improving citizenship in a soil devoid of reading matter.

Yet so long as private enterprise must be depended upon, publications wait on general literacy. To break through this difficulty we recommend that the Insular Department of Education undertake the publication and free distribution of a periodical dealing with current events and important practical matters related to health, diet, home-making, and community life. It should be a first principle in the Department's management of this periodical that it should be completely exempt from political influence and free from bias. It should be printed in both Spanish and English.

In the light of these various considerations, it is our conclusion that the Porto Rican Department of Education, in refusing to follow the recommendations of the Educational Survey Commission, acted with a true instinct. In spite of the fact that the mass of the people can make little use of the very poor English they acquire in the present-day schools of the country, as a long run matter we believe that a discontinuance of English training in the early grades would be a step backward. It might be wise, however, to direct this instruction to the specific object of helping pupils who may eventually find employment on the mainland to qualify for work in an English-speaking country.

The broadening and enrichment of the curriculum is a matter of paramount importance. Partly because of the meager educational resources of the Island, and in part because of traditional educational ideals by no means confined to Porto Rico, education in the lower grades has consisted largely of teaching by rote purely formal and linguistic subjects. It is particularly important that in a place like Porto Rico, where educational opportunities are at best restricted, the school system should afford training relating to civic and social problems and provide for the development of industrial intelligence and some degree of manual skill. It is only in the schools that the laws of dietetics, habits of health, and ideas pertaining to thrift and a social responsibility can be inculcated. The significance of broadening the scope of the curriculum is well stated by the Educational Survey Commission as follows:

> Modern school systems have been built up primarily on a traditional literary basis. The primary, often the sole, function of the school has been to produce the ability to read and write. Whether the child, after being given this ability, ever had any inclination to read or was given anything worth while to read, never concerned educational authorities. Under these conditions the real education of the child, which consisted in acquiring new ideas and in applying ideas to conduct, was gained outside the school. Until recently the organization of society was such that the child got much of this essential education in the home, on the farm, in the shop—wherever he participated with adults in the ordinary activities of life. In almost every community, modern society with its highly centralized production, minute division of labor, and highly developed means of communication, makes informal social education impossible. While multiplying the necessity for information and skill, modern life destroys much of the means to the natural realization of these ends. Upon the school has been thrown the responsibility of making such adjustment as compensates for all these fundamental changes in social organization.

It is believed that even in the elementary grades some worthwhile instruction in health habits and food requirements can be given without the dropping of English from the curriculum, particularly if in due course the average child becomes able to spend a larger number of days annually in school. Such training does not require any great amount of time in contrast with the offering of training along industrial and vocational lines. This practical training properly comes at a later stage in the curriculum and does not necessitate, therefore, the displacement of English in the first three grades.

The need of vocational training has long been recognized by students of Porto Rican problems. Nearly 20 years ago, Meyer Bloomfield reached the conclusion that "the Island schools are unquestionably helping to make good citizens. It is a grave question whether the present arrangements contribute materially to the making of home-makers, producers, skilled workers, self-reliant and efficient breadwinners."[4]

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[4] *A Study of Certain Social, Educational, and Industrial Problems in Porto Rico,* 1912, p. 11.

SURVEY OF EIGHTH GRADE GRADUATES

I. MEN

Classification	Prior to 1919			1919 to 1923			1924 to 1928			Grand Total[a]
	Island Outside San Juan	San Juan	Total	Island Outside San Juan	San Juan	Total	Island Outside San Juan	San Juan	Total	
I. EDUCATION										
No additional	142	31	173	146	29	175	306	125	431	779
High school	454	163	617	754	193	947	723	422	1,145	2,709
University	118	97	215	155	40	195	13	8	21	431
Total	714	291	1,005	1,055	262	1,317	1,042	555	1,597	3,919
II. RESIDENCE										
Home town	303	283	586	444	256	700	785	705	1,490	2,776
San Juan	80	—	80	68	—	68	54	—	54	202
Elsewhere P. R.	165	23	188	205	15	220	129	17	146	554
Mainland U. S.	141	8	149	225	13	238	92	20	112	499
Latin America	29	3	32	19	1	20	6	—	6	58
Elsewhere	—	—	—	2	—	2	1	—	1	3
Total	718	317	1,035	963	285	1,248	1,067	742	1,809	4,092
III. OCCUPATION										
Teachers	117	15	132	125	4	129	1	1	2	263
Professions	78	56	134	44	9	53	2	4	6	193
Government Service	36	30	66	61	9	70	9	10	19	155
Clerical	131	52	183	133	72	205	128	103	231	619
Commerce	106	38	144	53	23	76	21	33	54	274
Industrial[b]	32	28	60	68	31	99	35	92	127	286
Farming	35	3	38	51	1	52	26	—	26	116
Miscellaneous	84	91	175	283	115	398	665	357	1,022	1,595
Total	619	313	932	818	264	1,082	887	600	1,487	3,501

II. WOMEN

I. EDUCATION										
No additional	92	31	123	84	39	123	220	127	347	593
High school	496	213	709	852	255	1,107	739	620	1,359	3,175
University	35	88	123	65	55	120	21	24	45	288
Total	623	332	955	1,001	349	1,350	980	771	1,751	4,056
II. RESIDENCE										
Home town	339	338	677	560	365	925	737	997	1,734	3,336
San Juan	55	—	55	73	—	73	51	—	51	179
Elsewhere P. R.	158	28	186	217	16	233	159	45	204	623
Mainland U. S.	49	5	54	92	2	94	45	10	55	203
Latin America	5	1	6	2	—	2	1	1	2	10
Elsewhere	2	—	2	1	—	1	—	—	—	3
Total	608	372	980	945	383	1,328	993	1,053	2,046	4,354
III. OCCUPATION										
Teachers	279	97	376	324	51	375	8	5	13	764
Professions	10	22	32	17	11	28	13	15	28	88
Government service	4	5	9	5	2	7	7	10	17	33
Clerical	43	52	95	73	89	162	47	165	212	469
Commerce	6	6	12	6	2	8	—	6	6	26
Industrial[b]	2	—	2	7	—	7	2	4	6	15
Farming	1	—	1	1	—	1	1	—	1	3
Miscellaneous	208	177	385	405	194	599	749	637	1,386	2,370
Total	553	359	912	838	349	1,187	827	842	1,669	3,768

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[a] The totals given under the heading of education, residence, and health do not check with each other in either of the two sections of the table. The explanation for the discrepancies is in part that some of those included in the total under the heading of education are now dead; in part that for some of the graduates only partial information was available.

[b] Industrial includes trades and manufacturing, and probably other occupations not easy to classify.

While some training along vocational lines, as has been pointed out above, is now given, only a beginning has been made.

It is difficult to determine the effects of Porto Rican education upon the earning power and hence upon the standards of living of those who are supposed to have benefited by it. An answer to this question might be obtained were it possible to register the occupations and incomes of former pupils of known family antecedents leaving school at the completion of one grade or another. Such a method, however, is impracticable even by a sampling process. In general it is known that the great majority of the students in the lower grades come from the humbler homes of the working people and that those who drop out of school early usually, and almost inevitably, follow the callings of their fathers. Fortunately, it has been possible to ascertain the present occupation and residence of a sufficient number of eighth-grade graduates and to draw some conclusion as to the benefits which such students derive from their school training. This information is presented in the table on pages 84 and 85. The basic data for the table were collected for us by the supervisors of schools of the Island under the direction of the Commissioner of Education. They cover a total of more than 4,600 men and 4,700 women from all parts of the Island. Of these, about 1,350 of the men (or about 30 per cent) and 2,200 of the women (about 47 per cent) were graduated from the schools of San Juan.

A sample such as this, which includes none below eighth-grade graduates, of course, represents the children of the middle and upper classes and can indicate the effects of the educational system only in so far as these classes are concerned. The data presented, therefore, should be read with this limitation in mind.

It will be seen that most students who completed the eighth grade also finished a high school course. While more women than men graduated from high school, relatively more men, or nearly one in nine of the total reported, subsequently attended an institution of higher learning. Over one-half of the men and two-thirds of the women who finished their eighth-grade course prior to 1919, and who may be assumed to be fairly settled in life, still reside in their home towns. More men and more women have removed from their original places of residence in the Island to the mainland than to the capital city, San Juan. Only 68 of the 9,300 or more graduates represented are now residing in Latin America.

During the earlier years recorded, when school facilities were being extended very rapidly, most of the women and a large number of the men who continued in school through the eighth grade, and whose occupations are specifically reported, found employment as teachers. Relatively fewer of the recent graduates have as yet taken up educational work, possibly because those who plan to do so are still pursuing higher and professional courses. The group of younger graduates also contributes heavily to the very large number holding temporary positions or working at home, who are classified as engaged in miscellaneous occupations. Taking the data as a whole, it will be seen that this "miscellaneous" or unclassified group bulks largest in the total, both for men and women. The clerical group ranks next largest for the men, while teachers rank second among the women.

If we confine the comparison to the rather inadequate list of earlier graduates whose present employment is definitely described, we discover that relatively few even of the men are engaged directly in physical production. Of the 2,014 men graduated prior to 1924 for whom we have data, only 90 are specifically designated as farmers, and only 379 are classified as being engaged in industry (trades and manufacturing) and in commerce. Of the 2,099 women graduated prior to 1924, the number classified in these three groups totals only 31.

These figures seem to bear out the following criticism made by the Educational Survey Commission:[5]

> The students now in high school seem quite in the dark with regard to their future careers. Reports from graduates of the high schools in 1925 show a surprisingly large number of boys as well as girls who are "staying home, waiting for a rural teacher position," or otherwise unplaced in useful occupations. It was not unusual for a manual training teacher in the continuation schools, when asked what his boys did after leaving his classes, to reply, apparently without realizing the light his answer threw on the problem of guidance: "Oh,

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[5] *A Survey of the Public Educational System of Porto Rico*, p. 244.

they don't do anything much; sometimes they work in the store, or stay around home." This situation is due in part to the fact that the schools have never taken seriously into account the future of their students, other than that those who survived would probably go on to college, or else into commercial work or teaching.

Industries cannot be created in the classroom and too ambitious a program of technical instruction may outrun the labor market and burden the community with a new class of economic misfits. Nevertheless, the public schools should teach the technique and standards of modern industry, inculcate habits of industry, and cultivate ideals of industrial service, if they are to turn out graduates capable of bettering the economic condition of the people.

In this connection the Educational Survey Commission makes some very pertinent and practical suggestions. We quote from their report as follows:[6]

> The Commission wishes to warn against the assumption that large expenditures for building and equipment are necessary before this work can begin. For automobile repair work a shed, a discarded car which the Government Bureau of Transportation or a garage might furnish from its junk heap, the simplest tools, and a mechanic-teacher would form an adequate starting equipment. The most outstanding objection to be urged against the present work in manual training is the unduly expensive equipment which is provided for work which at best is inadequate. The criticism of unduly expensive equipment is valid in the case of home economics equipment in some high schools. School equipment should include but little more than the kind of tools with which the students will be obliged to work when they practice their skill in home or shop. In order to acquaint them with better equipment of a sort which they might conceivably acquire, a small margin beyond this might be provided. The length of courses offered in such industrial schools or courses should be governed not by any preconceptions about courses of fixed period of length but by the time necessary for a student to acquire the skill concerned. . . .
>
> For all children living under rural or semirural conditions the goal should be that every child before leaving school should have training in garden work. Garden fairs or sales, such as are now held, are valuable both in increasing an interest and in developing a profit in this work. . . . The various difficulties

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[6] *Ibid.*, pp. 36, 38, 39.

met in the island in raising garden crops should not deter a school from having a garden. The overcoming of these difficulties of supply and distribution of water, of eradication of insect pests or of plant infections, forms but a necessary part of the practical training of the children. The improvement of health, following a wider and more wholesome diet, would in itself afford justifications for this work. But the educational, economic, and social values are also great. . . . In addition to school gardens, boys' and girls' club work should be developed. The raising of poultry, of pigs, of corn or cotton or other crops, the canning of vegetables or fruits; or the production of needlework form types of club work feasible in Porto Rico.

Some of the recommendations of the Survey Commission along these lines have already been instituted, and progress is undoubtedly being made. Nevertheless, the reaching of the desired goal is a difficult task. Not only is there the ever present problem of financial ways and means; there is also required not only a revision of school programs but the building up of a personnel imbued with the ideals and trained in the methods of the newer forms of education. Involved with this problem is the question of the residence of the country school teachers. At present many of them live in urban communities and are carried in and out of town in busses. The interests of these teachers are, therefore, chiefly urban, and the social influence which they might exert among the people with whom they labor is thereby greatly reduced. In order to make it possible for them to live in the vicinity of the rural schools it is necessary to provide teachers' residences to the end that the rural schools may come to perform some of the services of a social settlement.

The schools of the Island must be given more adequate financial support. At the present time the schools are supported entirely from Island revenues, and these have not proved sufficient to meet the needs of the expanding population in recent years, let alone provide the necessary increase of educational facilities for the previously existing population. The following figures show that, during the last four years, the current outlays for education have not been increasing as rapidly as population:[7]

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[7] Compiled from the reports of the Commissioner of Education for the year in question. Population taken from the reports of the Commissioner of Health.

	1924-25	1925-26	1926-27	1927-28
Public school expenditures, per 1,000 people	$4,945	$4,239	$4,176	$4,049
Total enrollment, per 1,000 people	156	152	149	153
Rural enrollment per 1,000 of the rural population	125	120	118	122
Urban enrollment per 1,000 of the urban population	218	217	212	219

The investigation of the fiscal system of Porto Rico[8] which we have made indicates that some real improvement can be obtained from a more equitable distribution of school income and certain economies in administration.[9] It is possible also that the total revenues available from taxes for school purposes may be gradually increased, but it is our belief that considerable direct aid from the United States government is also required.

It has been a fundamental policy of the United States government to promote the education of the people of our Insular possessions. Moreover, the Union may reasonably expect to derive important cultural and commercial, as well as political, benefits from making Porto Rico a liaison point between English-speaking and Spanish-speaking America. In view of these facts, the Federal government, it would seem, should at least assume the cost of teaching English in the schools of Porto Rico, since this instruction constitutes a special burden upon the resources of the Island, and for some years to come ought to be given in considerable part by teachers whose mother-tongue is English.[10]

Nor ought the aid of the United States to stop there. Our long record of national subsidies for local education gives ample precedent for aiding in other of Porto Rico's pressing educational needs. Beginning in 1785 with the reservation of lands for public school purposes, Federal support has continued through a series of generous land grants and direct financial outlays. The most important recent Federal subsidies have been through the Smith-Hughes Act, enacted in 1917, and

[8] See pages 279-81.

[9] See pages 151-52.

[10] For the danger of producing a hybrid Anglo-Latin patois in Puerto Rico of little practical and no cultural value to the learners, see Boggs, Ralph S., "Some Difficulties for Porto Ricans in American Pronunciation," in *The Porto Rico School Review*, December, 1928, January and February, 1929.

variously amended since that date. An act approved in February, 1929, commonly known as the George-Reed Act, made important additions to the funds to be distributed under the earlier law.

Hull Photo

A School Luncheon on a Feast Day

The purpose of the Smith-Hughes Act and its amendments was specifically to provide for the promotion of vocational instruction. It specifies that for a series of purposes the Federal government will contribute, dollar for dollar, funds spent by the states in various types of vocational training. A further development of this type of education has been repeatedly urged for Porto Rico. It appears that the Island could be greatly aided by an extension to it of the benefits of the Smith-Hughes and the George-Reed acts. Such an extension was recommended by Governor Towner in 1924 and was seriously considered by Congress. The chief objection appeared to be the fear that the inclusion of Porto Rico in the act would lessen the amount available for the states. The issue should be reopened with a view to making funds available to Porto Rico without subtracting the amount from that already appropriated to the states.[11]

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[11] See Chapter V, pages 106-08.

CHAPTER V

GOVERNMENT ORGANIZATION

I. INSULAR GOVERNMENT

When civil government was inaugurated in Porto Rico on May 1, 1900, the transformation in the Island's political status extended beyond a mere change of administration. With one or two doubtful exceptions its governors for nearly 400 years had been army officers and during the nineteenth century they had usually held the rank of lieutenant general and had the traditions and habits of long military service behind them. Although for a period before the American occupation Porto Rico had been represented in the Spanish Cortes, its delegates there were in several instances residents of Spain, and their influence upon the Insular administration was negligible. Provincial autonomy, granted on the eve of the war with America, left no impress on the political habits of the people. In a word, a Primo de Rivera form of government, with its typical vices and virtues, had been continuously in power. Consequently, the people had little experience in managing their public affairs.

As soon as Porto Rico came under the sovereignty of the United States, the President and Congress began to study measures to make over its people in the political image of their future fellow citizens on the mainland. From the beginning the Washington authorities realized that this would be a gradual process. They also knew that it must be accomplished by practice rather than precept. So in setting up a provisional government, instead of following the Spanish precedent of forbidding everything that was not expressly permitted to the Islanders, they adopted a policy of permitting everything that was not expressly forbidden either by statute or by administrative action controlled by statutory limitations.

This was the theory of the Foraker Act, the first organic law, which was in force from 1900 until the adoption of the Jones Act, the present Organic Act, in March, 1917. During these 17 years Porto Rico had an elected House of Delegates, consisting of 35 Island members, which formed the lower chamber of the legislative assembly and which exercised powers and functions similar to those possessed by such bodies on the mainland. An Executive Council appointed by the President and consisting of eleven members, of whom five were required to be native inhabitants of Porto Rico and of whom six were the heads of the executive departments established by the act, formed the upper chamber of the assembly. While it lay within the discretion of the President to select Islanders for more than five, or even for all the positions on the Executive Council, and to designate them heads of executive departments, in actual practice he appointed Continentals to the latter posts during the early years the law was in force and continued to do so with one or two exceptions until 1917. Consequently, Mainlanders controlled the government. The Foraker Act was designed to assure the people of Porto Rico full opportunity to express their will in all public matters through regularly elected representatives, but to prevent their political inexperience from provoking crises or engaging them in unwise public projects.

Porto Rico was excellently governed under the Foraker Act. Superior men were appointed to office because the prestige of the nation was involved in having proper officials in posts of such conspicuous responsibility. In particular, the public finances were wisely and economically administered. But this system did not satisfy the aspirations of the politically awakened section of the public which preferred if necessary a less efficient government of its own to a model government controlled by outsiders. This discontent expressed itself in several ways. It determined party divisions and platforms. It resulted in an effort to extend the powers and functions of the local governments, where native Islanders were in control, at the expense of Insular authority. Above all, it bred controversies between the two chambers of the legislative assembly, because the lower house attempted to force its will upon the Executive Council and the Governor by refusing appropriations except in return for political concessions. This friction grew so acute that in 1909 Congress amended the Organic Act to provide that whenever the legislative assembly failed to enact an appropriation law, the law of the previous year should remain in force.

Partly on account of this discontent, and partly because the people of Porto Rico had received 17 years of political training under the American régime, Congress in enacting a new organic law for the Island in 1917, made Porto Ricans citizens of the United States, thereby ending their rather anomalous status as "citizens of Porto Rico" under the previous act, and gave them practically the same rights as citizens of a territory. The chief reason for not conferring upon the Island the latter title—apart from a desire to avoid raising prematurely the question of future statehood—was that this might deprive the Insular government of such special fiscal favors as the privilege of retaining for its own use customs receipts collected in the Island, and the exemption of its residents from Federal income, internal revenue, and inheritance taxes.

The phrase "People of Porto Rico" designates a political division of the United States created in conformity with Article IX of the Treaty of Paris of 1898, which says that "the civil rights and political status of the native inhabitants of the territories ceded to the United States shall be determined by Congress."

The manner in which the Constitution of the United States applies to the Island is not explained in the Organic Law. In the early Insular Cases[1] the Supreme Court of the United States held that the affairs of the overseas territories were not governed by all parts of the Constitution, and in 1922 the Supreme Court decided that the act of 1917 did not change the status of Porto Rico from that of an "unincorporated" territory to that of an "incorporated" territory.[2] The legislation for Porto Rico, however, includes a bill of rights guaranteeing to Porto Ricans the non-political rights enjoyed by other Americans under the Constitution, excepting the right to demand a trial by jury. Prohibition was applied to Porto Rico with a proviso permitting its rejection by popular vote. It was voted upon and not rejected. Women suffrage has been adopted by vote of the Porto Rican legislature.

[1] Downes vs. Bidwell, 182 U. S. 244 (1901).

[2] Balzac vs. Porto Rico, 258 U. S. 298.

The status of the Island and its people is distinctive, therefore, principally on account of the limitations imposed upon self-government, and the individual Porto Rican escapes those special limitations upon his political rights if he leaves the Island and goes to a state. In this, as in other respects, his position is similar to that of a resident of a territory. He does not vote for President or Vice President of the United States, nor does he have voting representation in Congress; but he helps to elect and to send to Washington a Resident Commissioner, who receives the salary and has certain other privileges of a member of the House of Representatives.

The reserve powers of the Federal government with respect to Porto Rico are theoretically unlimited. Congress can amend the Organic Act at will and otherwise exercise paramount jurisdiction over the Island. In practice, however, the use of these powers is limited either by statutory definition or by constantly strengthening precedent. Federal control over the Island is exercised through three main agencies.

The first of these is Congress itself: (a) All statutory laws applicable to other parts of the United States and not locally inapplicable or expressly excepted—such as the internal revenue laws and the Interstate Commerce Act—have the same force and effect in Porto Rico as upon the mainland. (b) Certain acts or resolutions of Congress apply exclusively to non-contiguous territories, such as that portion of the joint resolution of May 1, 1900, prohibiting any corporation thereafter organized to engage in agriculture from owning in excess of 500 acres of land. (c) Congress enacts laws applying exclusively to Porto Rico such as the present Organic Act, which contains numerous provisions of a general legislative character, and a recent statute applying to injunctions in tax cases. (d) Congress may, of course, repeal any law adopted by the legislature of Porto Rico by virtue of its paramount jurisdiction over the Island, and this is expressly stated in the Organic Act. (e) Congress, therefore, naturally can exercise the right of concurrent legislation in matters concerning which the Porto Rico legislature is authorized to make laws. For example, Congress seemed upon the point of granting the suffrage to women in Porto Rico when the local legislature, in order to anticipate Federal action, passed its own law giving them the vote. In practice, however, Congress rarely exercises any of these rights except its constitution framing powers.

Under the authority of Congress, the President appoints directly, with the advice and consent of the Senate of the United States, the Governor and two of the six heads of executive departments—the Attorney General and the Commissioner of Education. He also appoints the Auditor, without Senate confirmation, and the Chief Justice and the Associate Justices of the Insular Supreme Court. In addition he can determine through his appointee, the Governor, and subject to the advice and consent of the Senate of Porto Rico, the selection of heads of the remaining four executive departments and of other appointive Insular officials. This is a power, however, which the Chief Executive has never exercised. Naturally, he likewise controls the appointment of Federal officers and judges stationed in Porto Rico as he does of those upon the mainland. He can also veto any act of the Insular legislature which has previously been passed over the veto of the Governor by a two-thirds majority of both houses.

While this veto power is rarely used, and is negative in character, the chief magistrate of the nation does exercise a continuous and positive influence over the affairs of Porto Rico through his appointees. The Governor is not required, as he is in the case of Hawaii, to be a citizen of the Island, and this office has been held hitherto by Mainlanders. A full discussion of the part it has played in the fortunes of Porto Rico during the past 30 years would lead too far into historical details. Moreover, it would have little constructive import, beyond pointing the obvious moral that a position so important for the prestige of the nation and the welfare of nearly a million and a half American citizens should be filled by a worthy and a competent incumbent.

Peculiar importance attaches to the function of Auditor in Porto Rico, beyond that commonly recognized in a state, because he occupies a position of dual responsibility, one to the Insular legislature and the other to the Federal government. It is his function as an Insular official to see that public monies are expended as directed by the legislature. In this respect, he resembles the auditor of a state. As the agent of the legislature for bringing checks to bear upon the executive branch of the government, he should be independent of the latter. His duties transcend those of a state auditor, however, because he is responsible also to the Federal authority, and under the Organic Act may be required to report directly to Washington. Among his duties, which might in an emergency become a matter of Federal concern, is that of bringing "to the attention of the proper administrative officer expenditures of funds or property which, in his opinion, are irregular, unnecessary, excessive, or extravagant."

The third and final channel through which Federal jurisdiction is exercised over Porto Rico is the courts. In case of the Insular Supreme Court, this does not extend beyond the appointment of justices, but the Island constitutes a judicial district of the United States where cases involving over $3,000 between citizens of Porto Rico and of any state or foreign country—including most of those in which large property interests are at stake, must be heard before a Federal judge, who has always been a continental American, and may be appealed to higher tribunals on the mainland. Incidentally, this legal protection is said to be a motive inducing some large business firms operating in the West Indies to fix their headquarters in the Island.

Considering Federal control under its functional aspects, the national government limits local authority chiefly in respect to finance, franchises, and corporations. The amount of Insular and municipal indebtedness that may be incurred is restricted to a fixed percentage of assessed valuation; in case the legislature fails to pass an appropriation bill, the last preceding law automatically remains in force; the order in which different groups of government obligations shall be paid, when there is a default of ready funds in the treasury, is determined; the salaries of certain officials, including all those appointed by the President and all heads of executive departments, are fixed by Federal law, and various details of appropriation and fiscal procedure are prescribed. In several of these respects Porto Rico has less freedom of action than has either Hawaii or Alaska. Public franchises must be reported to Congress, which reserves the right to annul them. Corporations are forbidden to water their stock, to declare stock dividends, or to own more than 500 acres of agricultural land.

On the other hand, the Federal government's relations with Porto Rico are by no means entirely supervisory and inhibitory. They include such usual services as an agricultural experiment station, a branch of the Federal Land Bank, and similar institutions found upon the mainland. Porto Rico is treated as incorporated territory of the United States in respect to customs duties, but receipts from this source, less the cost of collection, go into the Insular treasury. In fact, no taxes for the support of the national government are collected in Porto Rico or upon Porto Rican trade or income. If the Island were not given this special treatment a large share of its potential public income would be taken by the national treasury. Furthermore, the United States gives regular, if not large, financial assistance to the Island. The principal item is the internal revenue collections upon tobacco and other taxed commodities which are shipped from the Island to the United States, which are turned over to the Insular treasury. The incidence of this tax is not upon the people of Porto Rico, and this return is, therefore, an outright grant amounting to about $400,000 annually. The University of Porto Rico qualifies as a land grant college for the purpose of receiving $50,000 a year from the Federal treasury under the terms of the Morrill-Nelson Act. A Porto Rican regiment is supported by Federal funds, and Porto Ricans are eligible to appointment to West Point and Annapolis and receive commissions in the regular Army and Navy the same as Mainlanders.

The Bureau of Insular Affairs of the War Department has the duty of following the affairs of Porto Rico for the President. Legal counsel of the War Department represent the Government of Porto Rico in the courts of the United States. Purchasing for the Porto Rican government in the United States is handled through the Bureau of Insular Affairs, which also arranges the sale of Porto Rican bonds. It has been suggested that these functions, and those of the Secretary of the Interior with respect to the territories, be transferred to a bureau of the State Department, created expressly to exercise such administrative supervision as may be required over the non-contiguous possessions. Under the auspices of this department a skilled personnel might be developed, recruited in part from natives of these various territories and from officials who have had long experience in them, and embracing men whose cosmopolitan associations qualify them to deal intelligently with the quasi-diplomatic questions presented by the far-flung outposts of the nation.[3]

As now constituted, the Insular government consists of an elected legislature of two houses holding annual sessions and having the usual power of such bodies subject to the provisions of the Organic Act.

The Judiciary includes the Supreme Court with a membership selected by the President with the consent of the United States Senate for indefinite terms. At present, three of the five justices, including the Chief Justice, are native Porto Ricans. Judges of the seven district courts are appointed by the Governor with the consent of the Porto Rican Senate for terms of four years. The same method of appointment obtains for municipal judges and justices of the peace and other officers of the judicial organization, and the four-year term is also applicable to all. The plan has been successful only for district court judges, and the problem of securing a greater number of good municipal judges and justices of the peace is one of the most serious administrative problems before the Island. The Organic Act fixes the method of appointment of all of those officials, but not their term of office.

Including the Auditor's Office, there are nine principal administrative departments.

MAJOR ADMINISTRATIVE DIVISIONS

DEPARTMENT	TITLE OF THE CHIEF	MAJOR FUNCTIONS
Justice	Attorney General	Legal advice, attorney for the government, administration of prisons, administrative office for the courts.
Education	Commissioner of Education	Supervision of the public school system.
Auditor's Office	Auditor	Auditing and accounting.
Finance	Treasurer	Collection of taxes, custody of public funds, supervision of banking, assistance to municipalities, borrowing, administration of the Tobacco Guarantee Office in New York.

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[3] Compare Willoughby, W. F., *Reorganization of the Administrative Branch of the National Government*, pp. 60-66.

MAJOR ADMINISTRATIVE DIVISIONS (*continued*)

Interior	Commissioner of Interior	Supervision of public buildings, highways, public lands, harbors, telegraphs, irrigation, water power, parks, and automobile traffic.
Health	Commissioner of Health	Health; sanitary, food, and drug inspection; disease control; maintenance of hospitals, insane asylums, charity schools, and school for the blind.
Agriculture and Labor	Commissioner of Agriculture and Labor	Operation of experiment station, demonstration farms, and other agricultural work; inspection of fertilizers and feeds; forest service; factory inspection; intervention to settle labor disputes.
Executive Secretary's Office	Executive Secretary	Filing official documents; keeping corporation records; inspecting weights and measures; government purchasing, printing, and in part automobile transportation.
Police	Chief of Police	Policing; exercises functions of both state and town police throughout the Island.

The Police Department is not mentioned in the Organic Act.

Administrative functions are exercised also by the following agencies which are not parts of the departments named above:

The University (Under a Board of Trustees)
The Carnegie Library (Under a Board of Trustees)
The Historical Archives
The Homestead Commission (Administering workmen's homes and settlements)
The Office of the Insurance Commissioner (Nominally a part of the Department of Finance)
The Governor's and Legislative Translation Bureau
The Government Employees' Pension Board
The Athletic Commission (Regulating boxing)
The Racing Commission (Regulating racing)
The Civil Service Commission
The Board of Elections
The Public Service Commission
The Industrial Commission (Workmen's compensation)
Seven professional examining boards.

These bodies are directed by officers who, except ex-officio commission members, are appointed by the Governor with the consent of the Senate, and they exercise discretionary powers which place them in a somewhat different position from purely administrative bureaus. All but the examining boards have separate offices and administrative staffs.

Only the Public Service Commission is provided for by the Organic Act, which, moreover, contains a clause specifically prohibiting the creation of "executive departments." This provision of the fundamental law was apparently intended to prevent the growth of a complicated administrative structure, but has been interpreted to permit the creation of the existing units. In fact, the clause is obviously ineffective, since the Organic Act elsewhere refers to only six of the administrative departments created by it as "executive departments," thereby implying that the term is not applicable to the Public Service Commission, the Executive Secretary's Office, or the Auditor's Office.

Except in the case of the Office of the Insurance Commissioner, which is nominally in the Department of Finance, and the Translation Bureau, which may be regarded as attached to the Governor's Office, the theory of organization recognized in the separate status of these several agencies seems to be that a board or commission and its office staff do not constitute an executive department. It is not recognized that the functions of the independent boards and commissions must be partially if not wholly administrative or executive.

Another group of boards and commissions illustrates the possibility of making such a body an agency within a department:

1. The Board of Review and Equalization is a part of the Department of Finance. Its function is to settle tax disputes. Two members and two alternate members of this board are elected: other members are appointed and the Treasurer is ex-officio chairman.
2. The Police Commission is attached to the Police Department. It selects policemen and has general duties of investigation.

3. The Mediation and Conciliation Commission is attached to the Department of Agriculture and Labor and deals with industrial disputes.

4. The Teachers' Pension Board is a part of the organization of the Department of Education.

5. The Supply Committee, composed of department heads, operates as an integral part of the Bureau of Supplies, Printing, and Transportation.

Members of the Industrial Commission are appointed by the Governor on the nomination of the Commissioner of Agriculture and Labor, and to this extent that Commission has been brought into relation with an executive department.

Advisory and investigating boards have been created from time to time. These are departmental or interdepartmental, and do not involve a scattering of responsibility. They include a Board of Agriculture, a Child Welfare Board, a Board of Health, and a Rural Improvements Commission.

The organization of municipalities, the local governments, which is dealt with more fully in another section of this chapter,[4] is determined by Insular statute, but they are subject only to the limitations which Congress has set upon their borrowing power. Since the present Organic Law has been in force, and Islanders have a controlling voice in the central government, they have been inclined to limit rather than to extend local authority.

Political Parties

With the inauguration of civil government in 1900 a political group calling itself the Republican Party came into power in the majority of municipalities and in the elected house of the legislature. A distinguishing characteristic of the party was its friendship for the United States. These American sympathies, however, did not prevent active agitation for more political rights for Porto Rico. After 1904 the party was in the minority until it disappeared as a unit by splitting into two factions in 1924.

The Unionists were the dominant party after 1904, but in 1924 they combined with a minority of the Republicans forming the so-called Alliance, which has been dissolved since the last elections. The Unionists have always been strenuously opposed to restraints upon Porto Rican autonomy, and have advocated the independence of the Island, though on numerous occasions their leaders have intimated that statehood would be welcome if offered.[5] Wealthy Porto Ricans as a rule have been Unionists.

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[4] See page 114.

The Socialists are the radical party so far as one exists. They emphasize the interests of labor as opposed to those of the propertied classes, hold that the social and economic conditions of Porto Rico are unspeakably bad, and contend that the United States must step forward with substantial measures of relief. A section of the Republicans recently joined with the Socialists in an attempt to defeat the Alliance, thus forming a group known as the Coalition. The latter failed to win the election in 1928 by a very narrow margin. The Socialist party is large and is growing.

The Autonomy Issue

From the issues that have hitherto determined political alignments, it is evident that the question of self-government has been in the foreground in the minds of many Porto Rican leaders. They assume that the present political constitution of the Island is temporary and that a fully autonomous government will be granted eventually. The election of the Governor is the principal step in this direction demanded at the present time.

Judged by the emphasis placed upon it the autonomy issue is the principal problem of Porto Rico, but the arguments advanced hardly establish its supreme importance. Political leaders do not complain of selfish action on the part of the United States in dealing with the Island, and do not even cite important instances in which aims of the majority party have been prevented from being realized. They refer to the deplorable condition of the poor as an argument for autonomy, but do not show any connection between this condition and the form of government. The case for autonomy seems to rest partly upon a sentimental appeal for political rights inspired by local pride, and perhaps in small part upon fear of control from Washington in the interests of large American taxpayers.

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[5] See, for example, *In Defense of Porto Rico*, p. 31: "If statehood is offered to our people now, it is our honest belief that Porto Rico would not, could not, refuse the honor that statehood implies in spite of the financial difficulties. * * *" Other leaders have expressed similar views.

The election of the Governor would almost eliminate American influence and would be very little different so far as control of local affairs is concerned from independence. Those who do not favor this change consider that the experience of the Island with limited self-government has furnished evidence of a lack of preparedness for such a step; and assert that the elections, now regulated by a continental American, would be grossly unfair if outside control were relaxed. Moreover, the achievements of the Insular administration and even of the legislature have depended in part upon the co-operation and the watchful eye of continental officials, who stand aloof from local interests and discords. Although much of the recent progress of the Island may be credited to Porto Rican leadership, the contribution of continental Americans to that progress has been fruitful, and possibly indispensable.

A more prudent method of conferring larger powers of self-direction upon the people of Porto Rico would be by two steps.

The first of these should be the amendment of the Organic Act along the lines indicated in the recommendations that follow, with a view to perfecting the Island's government machinery in the light of the past 13 years' experience before committing the Federal authority to a step which it would be very difficult, even in case of most urgent necessity, to retrace. The fact that certain political precedents have grown up upon the mainland, begotten of the Continent's peculiar conditions and traditions, is no argument for forcing them unchanged upon a people for whom they have no historical validity. Congress, which can act without bias in this matter, should give Porto Rico a constitution as perfect as our experience with the defects as well as the merits of the system of government we have inherited permits us to construct. It should be drafted, moreover, with an intelligent appreciation of the fact that the temperament of the Porto Rican people justifies a concentration of power and responsibility in the hands of the executive greater than is usual in the States.

The second step should be to appoint Governors from the Island itself for a period before resorting to the system of election. A series of appointed native Governors could establish precedents that would stabilize the office and help it better to withstand political strains after it becomes the first prize of local politics.

At the moment Porto Rico, partly through natural disaster, partly through inexperience, and partly perhaps through too indulgent guidance, finds herself in financial difficulties that call for close supervision of the Island's affairs from Washington. That crisis over, it may fairly claim the right to work out its own destinies with steadily widening political autonomy. Additional assistance should be given immediately, however, to help it solve the pressing problems of revenue, debt, and public administration. Porto Rico needs the advice and assistance of various types of experts. There are no government activities which cannot be strengthened by consulting persons of wide experience in the respective fields. This is clearly true as to the major functions of education, public health, criminology, and public works, and as to such problems as taxation, public debt, government accounting, and civil service. In following pages the recommendation that the government obtain the assistance of qualified advisers recurs several times.

Congress might well provide an ample appropriation to permit the Governor to engage staff advisers. A similar proposal has already been made for the Philippines, and the funds have been provided by Insular appropriation. In the case of Porto Rico it may be suggested that the appropriation be made for the present from Federal rather than Insular funds, because the recent disastrous hurricane has seriously crippled the finances of the local government.

In our survey of the Island we found that the only important grant-in-aid that had been extended to Porto Rico of the numerous acts of Congress extending such aid to the states was the Morrill Acts for Colleges of Agriculture and Mechanic Arts and the establishment of an agricultural experiment station at Mayagüez under the Hatch Act. We are of the opinion that all grants-in-aid that Porto Rico is financially able to accept should be extended to it. The acts that should be so extended at the present time are:

1. Roads
   Sundry Federal Highway Acts (39 Stat. L., 355, etc.)
2. Vocational Education
   Smith-Hughes Act (39 Stat. L., 929)
3. Rehabilitation of Persons Disabled in Industry
   Fess-Kenyon Act (41 Stat. L., 735)
4. Co-operative Agricultural Extension Work
   Smith-Lever Act (38 Stat. L., 372)
5. Co-operative Work, Forest Service
   Clarke-McNary Act (43 Stat. L., 653)

The Federal highway acts have for their purpose to assist the states in the construction, reconstruction, and improvement of highways in the United States. Porto Rico is an integral part of the United States; it has some roads yet to be built to complete its highway system and the National government should assist it to the extent of extending highway acts to it.

Vocational education is of particular importance to Porto Rico. The Smith-Hughes Act provides for co-operative education in agriculture, in teacher training, and in trade and industry, all of which is a pressing need in the Island, and a grant should be made to it each year for vocational education.

Vocational rehabilitation appropriations of the Federal government now made under the Fess-Kenyon Act should also be extended to Porto Rico. We have no statistics of the number of physically handicapped persons in Porto Rico in need of vocational training, but nevertheless there must be many who would be benefited if Congress would extend this act to the Island.

If there is any part of the United States that needs assistance in the welfare and hygiene of mothers and their babies it is Porto Rico. The Sheppard-Towner Act became law in 1921, and was to remain in effect until June 30, 1927. An extension of the work until June 30, 1929, was authorized with the understanding that after that date the Federal government would withdraw from the field (44 Stat. L., 1024). Should the provisions of this act be re-enacted at any time in the future they should be extended to Porto Rico.

The co-operative agricultural extension work with the states authorized in the Smith-Lever Act in 1914, to give instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in land grant colleges in the states and the imparting of information on said subjects to such persons, through field demonstrations, publications, and otherwise, is another service that should be extended to Porto Rico.

The co-operative forestry work authorized under the Clarke-McNary Act for fire protection and farm forestry should also be extended to the Island.

In addition to the above it seems it is only right where Federal services have discretionary power with respect to their activities that they favor Porto Rico. For example, the Department of Agriculture might extend its crop reporting service to Porto Rico. The Public Health Service of the Treasury Department should co-operate with the Insular government in the prevention and control of venereal diseases, and the Geological Survey and the Coast and Geodetic Survey might co-operate in various ways, especially in a much needed cadastral survey of the Island.

Under the revenue act of 1926 a stamp tax ranging from one dollar to five dollars is imposed upon passenger tickets to foreign ports other than those in Canada and Mexico. By a ruling of the Treasury Department this tax is collected on tickets to Porto Rico, but not upon those to Cuba. The amount derived from this tax on Porto Rican passages amounts to between $50,000 and $60,000 a year, and at present goes into the Federal treasury. As long as such a discrimination exists against Porto Rico it would seem that the revenue from this source might properly go into the Insular treasury.

II. AMENDMENTS TO THE ORGANIC ACT

Though the survey has not had as one of its major purposes a consideration or criticism of the political system of Porto Rico, there are certain features of that system as provided for in the Organic Act of 1917 which deserve at least comment.

Organization of the Legislature

The first of these features is the provision that has been made for a bicameral legislature. The only valid reason for setting up a legislature composed of two houses is the making of provision for the representation of distinct interests. This was the historical explanation of the rise of this system in England, where at the time of the development of the British Parliament the country embraced distinct social classes and it was deemed desirable that each of these classes should be separately represented. The same reason dictated the creation of two houses in the Congress of the United States, where it was deemed desirable that representation should be given to the people directly on the one hand and to the constituent states of the Union on the other. The same was true when the first civil government was provided for Porto Rico. At that time it was deemed desirable to give to the Island itself representation in one house and to give representation as it were to the Federal government in the other house through the fact that the members of this other house were appointed by the President. The passage of the Jones Act of 1917 resulted in the creation of a political system under which complete legislative power was conferred upon the people of Porto Rico, subject only to the veto power of the Governor and of the President. Both houses of Porto Rico are now elected by the same electorate and at the same time. Both houses, therefore, represent precisely the same interests. In view of this fact, there would seem to be no reason for the separation of the legislative powers into two houses. Such separation not only entails additional expense and complicates the legislative process, but divides responsibility and invites personal and political dissension. Should the two houses be controlled by different political parties, responsibility for legislation cannot be located and dissensions between the two houses may easily result in a legislative impasse. At best action can be secured only through the process of compromise, which almost inevitably is productive of bad results. Even where the two houses are controlled by the same political party contests in respect to personal leadership are certain to arise and make more difficult the general operation of the government. Viewed from the standpoints of economy, efficiency, and smooth working of the governmental machine, it would seem, therefore, that a single-chambered legislature would be preferable to the two-chambered one that is provided for by the act.

Senatorial Approval of Governor's Appointments

Students of government have very generally questioned the desirability in any political system of the requirement that important appointments by the chief executive shall require the approval of the upper branch of the legislature. The objections to this requirement are: that it does violence in a way to the principle of the separation of powers through providing for participation by one of the legislative houses in the executive act of selecting competent officials for the conduct of executive or administrative affairs; and that it has as its result the transfer to a large extent of the selecting function from the executive to the legislative body. It thus tends to make purely political considerations dominate the selection of administrative officers. All of these objections are of especial weight in a country such as Porto Rico. In the first place, the chief executive is not the selection of any political party, nor is his holding of office in any way dependent upon the political support of any particular party. One of the prime reasons of providing for his selection by the President instead of by election is that he may occupy an independent position. The requirement that all of his important appointments shall receive the approval of the upper house of the legislature compels him to give weight to political considerations in making his nominations. It is believed that it would be more in consonance with the motives underlying the political system provided for by the Organic Act if this requirement of legislative approval of the Governor's appointments were repealed. This would leave it still possible for the Governor to confer with the dominant political party in making his selections, but would not put him in the position where he was compelled in all cases to get the approval of such party in order to secure the appointment of desirable persons.

Appropriation System

There is now general agreement that the establishment of a proper budget system lies at the basis of an efficient administration of the financial affairs of a government. The essentials of a proper budget system are: that the chief executive shall formulate and submit to the legislature a document known as a budget, which shall set forth a complete financial program for the government during the ensuing fiscal period; and that this complete program shall be considered at one and the same time by the legislature to the end that it may give consideration to the relative importance of proposed expenditures and the aggregate amount to be authorized to be expended in comparison with the total of the prospective income. It is of the essence of the budget, and of the appropriation act to be based upon the budget, that both shall embrace a complete statement or provision for the expenditure program for the period to which it relates.

Unfortunately, the Organic Act contains a provision which is diametrically opposed to any such system. This provision reads:

> The general appropriation bill shall embrace nothing but appropriations for the ordinary expenses of the executive, legislative, and judicial departments, the interest on the public debt and for public schools. All other appropriations shall be made by separate bills each embracing but one subject.

This provision requires a multiplicity of appropriation bills instead of a single appropriation bill as is desirable under a proper budget system. In the single appropriation bill, distinction, of course, should be made between those appropriations for the current operations of the government and those for capital outlays or extraordinary purposes.

This section of the Organic Act it is believed should be repealed and in its place should be substituted other sections requiring the use of a budget system analogous to that provided for by the Budget and Accounting Act of 1921 of the Federal government.

Functions of the Auditor

The provisions of the Organic Act setting forth the powers and duties of the Auditor are defective in that they fail to make definite and clear the scope of these powers and duties and what may be termed the more general responsibilities of the Auditor. The government of Porto Rico has been set up by Congress as an agency of that body for the conduct of the local affairs of the Island of Porto Rico. The relationship between Congress and the government of Porto Rico is that of principal and agent. Occupying the position of principal it is the duty of Congress to make provision that it may currently be kept informed regarding the manner in which affairs are being conducted by its agent. To this end, it has provided that there shall be an official to be known as the Auditor of Porto Rico, who shall be appointed by the President. It is through this officer that Congress has the means of assuring itself that the affairs of the Island, from the financial standpoint at least, are being honestly conducted. Unfortunately, in defining the powers and duties of this official the act fails to distinguish between the functions of a comptroller and an auditor. The functions of a comptroller are those of determining what payments should be made to or by the government, or, as the expression is, to settle accounts, and to keep the control accounts of the government. The functions of an auditor are those of examining such payments for the purpose of determining their propriety. The settlement of claims is a strictly administrative function and as such it is believed should be performed by an administrative officer. The second, that of audit, is a legislative function and as such should be performed by a legislative officer, or at least by a person independent of the administration that is responsible for the incurring and settlement of obligations.

The present Auditor, in effect, performs the duty partially of a comptroller and partially of an auditor. It is believed that it is desirable to recast this entire system, to modify the Organic Act so as to confer upon an officer of the Porto Rican administration the powers and duties of a comptroller and to limit the powers and duties of the Auditor strictly to those of audit.

In thus limiting the Auditor's powers to audit strictly speaking, emphasis, however, should be placed upon the responsibility of the Auditor not merely to assure himself of the fidelity with which all financial acts have been performed, but to seek to determine the efficiency and economy displayed by administrative officers in performing their functions and to include in his annual report the results of his observations. To state this in another way, it should be the function of the Auditor, through his annual or special reports, to keep the Congress of the United States fully informed regarding the manner in which the financial affairs of the Island are being conducted, from both the fidelity and the economy and efficiency standpoint, and to make such suggestions as to him seem pertinent for putting the administration of the financial affairs of the Island upon a more efficient basis. An essential feature of this change would be to repeal the provision permitting the Governor of Porto Rico to exercise any authority over the Auditor. It is quite proper to provide for a system of appeals from a comptroller to the chief executive but highly improper that the chief executive should exercise any authority in respect to an auditor.

In respect to the method of selection of these officers, it is believed that, having thus eliminated all comptroller functions, the duty of auditing the accounts of Porto Rico should be vested in the General Accounting Office of the National government, to be exercised by a special deputy of the Comptroller General of the United States designated by the latter official. This method of selection will insure that the official performing the duty of audit will occupy a position of independence even as regards the President himself, since such independence is provided for the Comptroller General. Such an officer can thus fearlessly scrutinize and, if need be, criticize the acts of Presidential appointees, including the Governor as well as locally selected officials.

The Insular Comptroller should logically be the head of the Department of Finance of the Insular government and should hold office by appointment by the President or by the Governor of Porto Rico according as it is deemed desirable that the determination of who shall hold this important office shall reside in the Federal or Insular government.[6]

This restriction of the duties of the Auditor to those of audit strictly speaking is of special importance in view of the eventuality that the selection of the Governor and all other officials may be entrusted to the citizens of the Island. Such action would logically carry with it the vesting of complete authority in the Insular government to administer all of its affairs, including the important comptroller function of settling all claims; that is, of determining and controlling the payments which should be made into and from the treasury. Upon the occurrence of this eventuality the Auditor will become the only representative of the Federal government in the Island in so far as the conduct of Insular government affairs is concerned. Himself participating in no way in the actual conduct of governmental affairs he will furnish the only means by which the Federal government may secure independent authoritative information regarding the manner in which its agent the Government of Porto Rico is conducting its public business. His services would be as nonpolitical as those of the professional accountant firms that corporations employ to make their annual audits, and would not encroach upon the complete autonomy of the Island within the larger jurisdiction of the Union covering all the states and territories.

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[6] For a statement of actual conditions in respect to the settlement of claims and audit, see Chapter X, Financial Control.

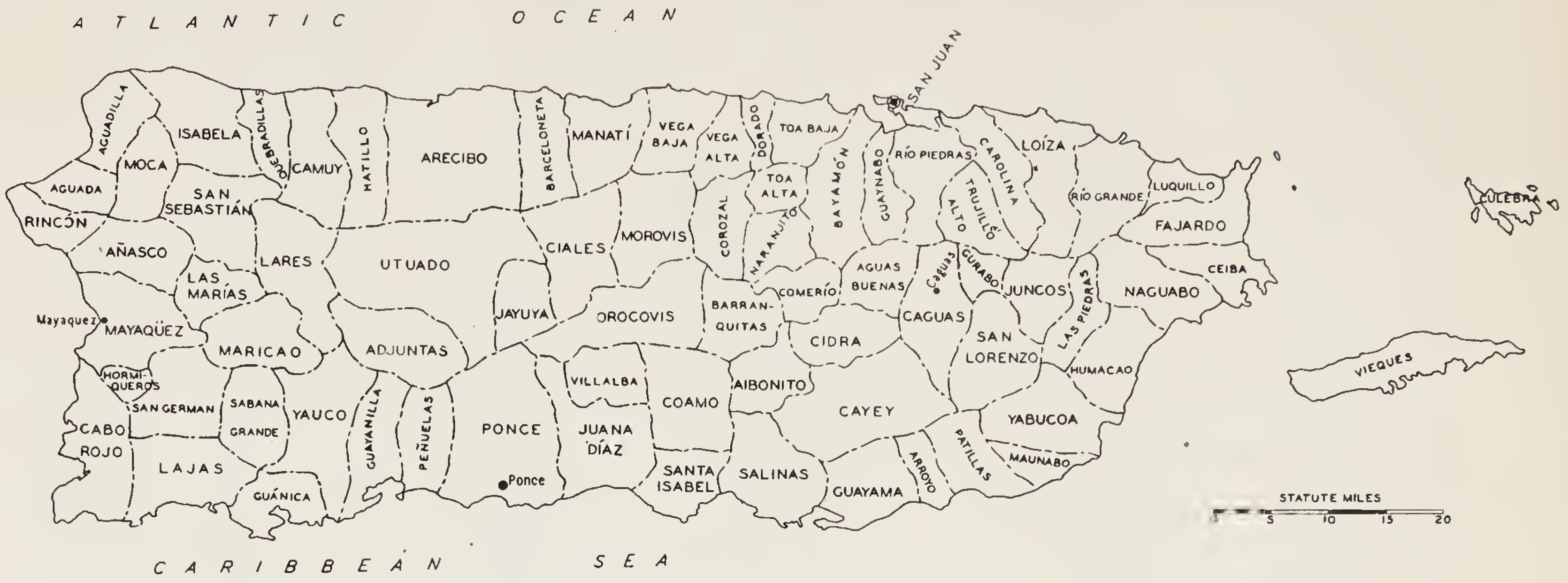
III. MUNICIPALITIES

Porto Rican "municipalities"—as the Spanish term *municipios* is popularly translated—resemble geographically counties, townships, or parishes upon the mainland, and generally contain large rural areas tributary to a single population center of small or moderate size. A few are dominated by more important towns, and San Juan itself is entirely urban without any country zone surrounding it. Their form of government is determined by general statute instead of special charters, and they are divided according to their wealth and population into the three classes described below. As will appear in the pages immediately following, these local units present an unsolved problem of government. The Insular legislature is constantly tinkering with the municipal law, and several radical revisions have been made without attaining an ideal constitution for these bodies.

General Description

One difficulty peculiar to the Island is that in Porto Rico, American theories of local government derived from Teutonic town and county organization and contemplating a wide dispersion of authority have been applied to a distinctively Latin institution, which traces its antecedents back to the Roman Empire and in its later European development at least has presupposed a highly centralized type of administration, of which

“MUNICIPALITIES” AND PRINCIPAL CITIES OF PORTO RICO

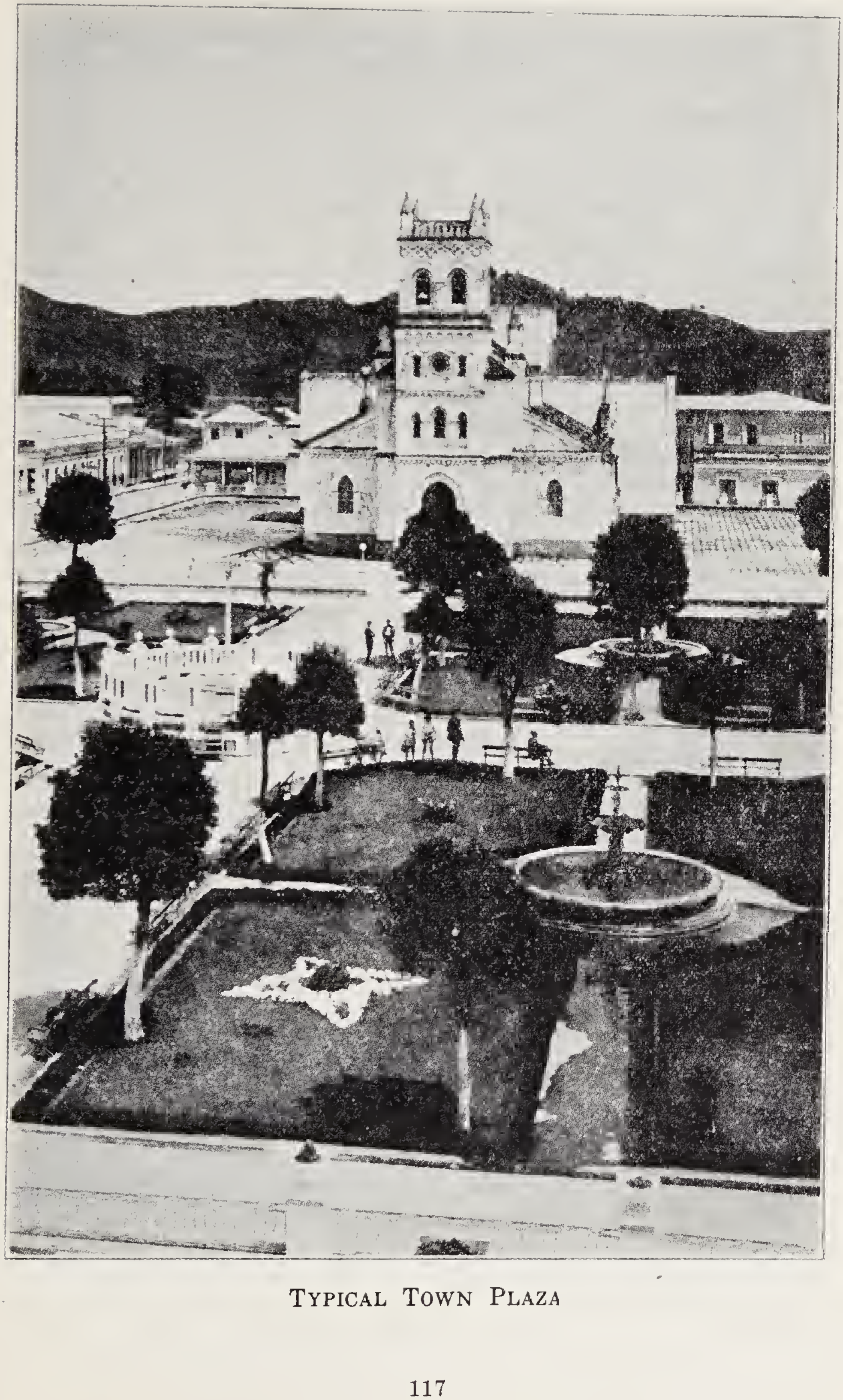

ATLANTIC OCEAN
CARIBBEAN SEA
SAN JUAN
AGUADILLA
ISABELA
QUEBRADILLAS
CAMUY
HATILLO
ARECIBO
BARCELONETA
MANATÍ
VEGA BAJA
VEGA ALTA
DORADO
TOA BAJA
TOA ALTA
BAYAMÓN
GUAYNABO
RÍO PIEDRAS
CAROLINA
TRUJILLO ALTO
LOÍZA
RÍO GRANDE
LUQUILLO
FAJARDO
CEIBA
NAGUABO
CULEBRA
VIEQUES
MOCA
AGUADA
RINCÓN
SAN SEBASTIÁN
AÑASCO
LARES
UTUADO
CIALES
MOROVIS
COROZAL
NARANJITO
COMERÍO
AGUAS BUENAS
Caguas
GURABO
JUNCOS
LAS PIEDRAS
LAS MARÍAS
Mayaquez
MAYAQÜEZ
MARICAO
ADJUNTAS
JAYUYA
OROCOVIS
BARRANQUITAS
CIDRA
CAGUAS
SAN LORENZO
HUMACAO
HORMIGUEROS
SAN GERMAN
SABANA GRANDE
YAUCO
GUAYANILLA
PEÑUELAS
PONCE
Ponce
VILLALBA
JUANA DÍAZ
COAMO
AIBONITO
CAYEY
YABUCOA
MAUNABO
CABO ROJO
LAJAS
GUÁNICA
SANTA ISABEL
SALINAS
GUAYAMA
ARROYO
PATILLAS
STATUTE MILES
5
10
15
20

we see the perfected form in France. In a word, the Porto Rican municipality today has the defects and weaknesses of a hybrid.

This fundamental difficulty has been accentuated in the all important field of finance by the fact that the Island's cities, towns, and villages have suddenly felt the need for modern community services such as piped water, lighted streets, sewers, and pavements. Some of these, like a safe water supply, are more essential in a densely populated and germ infected tropical country than in most parts of the mainland. The popular awakening to these needs combined with a certain amount of rivalry between neighboring towns and a tendency to liberal expenditure carried over from the easy money era caused by the abnormally high prices commanded by Porto Rican products after the war, involved the municipalities in a borrowing policy that has seriously compromised their solvency.

At present there are 77 of these local governments in Porto Rico, including the neighboring islands of Vieques and Culebra, or eleven more than at the time of the American occupation. Some of these are so exclusively rural that their seat of government is a mere country crossroads with five or six hundred people. In fact, there are only three real cities in the Island—San Juan, with a population of approximately 97,000, Ponce with 46,000, and Mayagüez with 20,000, followed by Caguas, the largest inland town, with 15,000. It is impossible, therefore, to bring these political divisions under a single caption in describing their physical and economic features. A visitor is likely to identify a district with its principal town and to judge the whole by what may be its least representative part. Some of the richest municipalities in respect to productive resources have shabby seats of government, few rural attractions, and scanty indications of civic enterprise. Others, poorer in agricultural wealth, have pleasing town seats, pleasant country sides, and many evidences of an active community spirit.

If we confine our consideration to the municipal center, many Porto Rican towns are reasonably well administered. Allowing for the handicaps which a large percentage of poor people and a low per capita income impose upon them, they are



Typical Town Plaza

better governed, at least so far as outward appearances indicate, than most towns of corresponding size and situation in the neighboring islands and republics. A plaza, creditable public schools, a church or two, usually a city hall, and generally a town hospital testify to the existence of a community awake to its social needs. Usually, however, as soon as a visitor steps aside from the civic center or the main business street, he finds himself in the midst of narrow and frequently unimproved byways, bordered by the hovels of the poor and destitute of everything that makes a neighborhood beautiful and attractive.

The most hopeful sign of progress in these country towns and villages, as well as in more strictly urban centers, is the growing evidence of a community consciousness. This was not entirely absent in Spanish times, as traditions of unselfish and unremunerated service by some local officials and occasional gifts and bequests for the public welfare still testify. But the former régime did not encourage this sentiment by placing authority and responsibility in the hands of the community itself. American efforts to rectify this omission were too precipitate and were largely nullified at the outset by misconceptions arising from a different political heritage. Thirty years of unstable municipal policy have followed which have not even today taught the local governments to direct their own affairs with the assurance and success that come from generations of practice.

Nevertheless, the civic spirit out of which all good government springs is growing stronger. Public opinion makes itself felt more effectively as time goes on. It is commonly believed that more people vote today than formerly according to their true convictions and with some knowledge of the merits of the men and policies for which they cast their ballots. This civic progress expresses itself in municipal affairs not only in a demand for the better community services afforded by schools and public works but also in a critical attitude toward the administration of these services. For example, sanitary conditions that would have excited no remark thirty years ago would not be tolerated in most Porto Rican towns today. Pamphlets and newspaper communications discussing practical municipal problems of public interest frequently greet the reader. A not uncommon thesis topic among students of the University is the betterment of local government in the home towns of the writers. Heartening examples of gifts and bequests by citizens to the community, of funds collected by social welfare societies for the general benefit, and of voluntary contributions by private individuals or business houses for street improvements and other betterments—from which the donor usually profits most but which none the less are of general advantage—testify to the fact that the art of living together in the spirit of mutual helpfulness is extending.

An illustration of what some of the better smaller towns are like is afforded by Hatillo, a little place in the edge of a valley looking out to the Atlantic on the northern coast of the Island. This municipality has a population of nearly 16,000, but the village center has less than 900 inhabitants. The entire town site of about 17 acres is owned by the municipality, which grants the occupancy of building sites free to residents but collects taxes upon improvements. This little town has water works, sewers, and electric lights supplied from a power plant connected with the government irrigation service. There are but three officials—the mayor, the town physician, and the auditor—and the budget for the last fiscal year slightly exceeded $23,000. The tax rate is $2.20, of which 55 cents is applied to interest upon and redemption of indebtedness.

Near the foot of another valley, on the opposite side of the Island and overlooking the Caribbean, lies one of the larger provincial towns, a municipality of the "second class," with nearly 10,000 people in its urban center and something over 11,000 in the surrounding country. This is an attractive, well-built little city and was one of the first to be occupied by American troops in 1898. It has an attractive plaza, faced on one side by an ancient parish church and on another by a Protestant place of worship. In the edge of the town, but within easy access of the residential district, are a high school and a large graded school occupying ample grounds. The town also has a hospital with separate cottages for tubercular patients. It has a modern sewer and water system of ample capacity for present requirements and is supplied with electric current for light and power from a neighboring irrigation system. Its budget for the fiscal year is just under $140,000, and its tax rate is $2.05.

Both of these municipalities extend inland from the seacoast to the foothill or mountain country of the interior, parts of which are accessible only by trails. It is difficult to judge the administration of these rural districts, but the latter is entirely subordinate to the interests of the townseat. Retail trade is conducted on such a small scale in Porto Rico that the rural population is served to a great extent by small shops hardly as large as market stalls, which are to be found along the main roads and indeed at almost every by-path intersection. Therefore, country people do not have as many errands in town, especially since they seldom patronize the post office, as do mainland farmers. This is particularly true in the mountain districts, where it sometimes happens that a peasant family has never seen the local seat of government. Since the schools and police, two of the most important public services in these rural neighborhoods, are largely supported and administered by the Insular government, the municipal center has comparatively little to do with the country barrios whose affairs are often run unofficially by a neighborhood boss. In the sugar country plantation camps, with a company store and sometimes a movie theater, house a large fraction of the population living outside of town.

San Juan presents the most difficult problem of local government in the Island, partly because it has tripled its population from 30,000 to nearly 100,000 within 30 years and has drawn its inhabitants largely from the country and, therefore, from classes unaccustomed to living in congested areas. Its citizens have had to learn how to run a city without previous experience and without nearby examples from which to copy. They have had to provide streets, water, a sewer system, and the other essentials of a modern seaport metropolis more rapidly and from slenderer resources than towns even in the fastest growing sections of the mainland.

Therefore, although San Juan's assessed valuation exceeds $800 per capita, which is more than double that of any other considerable town in Porto Rico, it has a net debt of more than $5,512,000, and at the close of the last calendar year had unpaid current bills amounting to nearly $664,000. Of the latter sum, more than one-quarter of a million dollars was owed to a private power and light company and bore interest at 9 per cent. Inefficient financial management has aggravated these difficulties. The city's present annual deficit of over $350,000 is to be charged largely to uncollected taxes. Like less important Porto Rican towns, its treasury is burdened by an unnecessarily heavy payroll, albeit under the law not more than 35 per cent of its annual appropriations can be expended for the salaries of permanent and temporary employees exclusive of school teachers.

Costly defects in the municipal plant, especially the water works, are due to incompetent engineering and lax superintendence of construction. Want of oversight, such as has doomed many mainland communities to permanent unsightliness, has permitted the growth of slums on lands that should have been reserved for the beautification of the city or for essential commercial uses. Other notable faults in city planning are aimlessly laid out streets in the newer suburbs, the absence of uniform standards of street and sidewalk construction and, in places, of any discoverable curb and building lines, and the unrestricted use of private land for objects that deteriorate the character of a neighborhood and destroy the Capital's structural and functional harmony. Consequently,

STREET IN OLD SAN JUAN

in spite of well conceived and vigorously prosecuted plans for improving the section near the new Capitol building, many portions of the city—covering the major part of its total area—which have been built up since the American occupation, are unnecessarily shabby and ill-planned. The older section, which was a walled town until about 50 years ago, is naturally congested but is not devoid of picturesqueness and harmony of design. The latter is rapidly being lost, however, as modern business structures replace the older Spanish buildings. But though San Juan is behind the times as a modern municipality, it shares this position with many mainland communities and its failure to utilize its opportunity to become a model tropical town is due rather to lack of knowledge than to conscious neglect. Generally in Porto Rico local improvements run to facade rather more than on the mainland, and the quarters of the poor receive relatively little care, but an ambition to make the home town a pleasant place to live in is expressed in many ways.

The most serious charge against those entrusted with municipal affairs is their readiness to sacrifice community interests to partisan quarrels. Outgoing town and city officials often empty the treasury and sometimes even willfully damage public property in order to embarrass an incoming administration of a different political creed. In one place inspected by a representative of this survey the former officials, during the interval between the elections and transferring office to their successors, practically exhausted the current year's budget, so that only 52 cents remained in the treasury, wrecked apparently maliciously the municipal government's two automobiles, one of which was practically new and unpaid for, and otherwise maladministered their trust. Other cases of a similar character were discovered. The Governor should have authority summarily to stop such abuses, as he has in certain states.

Government

Municipalities are divided into the following three classes on the basis of their population, assessed value, and government income.

First Class.

Population 30,000 or over, with an assessed valuation of $10,000,000 or over.

Second Class.

Population exceeding 5,000 but less than 30,000, with annual revenues of $50,000 a year, or more, or an assessed valuation of not less than $3,000,000, but under $10,000,000.

Third Class.

All municipalities not comprised in the two preceding classes.

The following table gives the names of these districts, with their area, population, and assessed values:

MUNICIPAL STATISTICS
(Figures are in thousands)

Municipality	Area in Cuerdas [a]	Estimated Population	Assessed Valuation of Property	Total Income Less Borrowing
		CLASS I		
Arecibo	76	49	$14,631	$249
Caguas	35	42	10,626	181
Mayagüez	33	44	12,854	237
Ponce	71	77	29,845	237
San Juan	.. [b]	96	77,691	1,322
		CLASS II		
Aguadilla	22	26	3,056	91
Barceloneta	21	14	3,518	44
Bayamón	28	26	7,492	135
Carolina	28	15	4,051	53
Cayey	31	28	4,983	97
Fajardo	19	15	5,197	77
Guánica	22	11	6,389	71
Guayama	39	20	7,040	140
Humacao	28	22	6,219	100
Juana Díaz	36	19	4,586	60
Juncos	16	14	3,057	49
Loiza	30	17	4,163	47
Manatí	27	22	4,968	97
Naguabo	27	16	3,045	42
Río Piedras	23	28	11,950	137
Salinas	42	14	7,099	87
San Germán	29	25	3,586	51
Santa Isabel	20	7	4,489	52
Utuado	74	38	3,931	49
Vega Baja	28	18	3,511	53
Vieques	31	12	4,276	66
Yabucoa	32	21	4,428	61
Yauco	41	27	3,440	60

MUNICIPAL STATISTICS (*Continued*)
(Figures are in thousands)

Municipality	Area in Cuerdas [a]	Estimated Population	Assessed Valuation of Property	Total Income Less Borrowing
CLASS III				
Adjuntas	43	18	2,215	26
Aguada	17	14	2,239	35
Aguas Buenas	18	12	936	15
Aibonito	20	15	1,729	27
Añasco	24	13	2,318	40
Arroyo	9	7	2,335	46
Barranquitas	21	12	938	15
Barros	39	16	1,189	15
Cabo Rojo	42	24	2,997	40
Camuy	28	16	1,890	23
Cataño	3	9	.....	32
Ceiba	13	6	1,052	14
Ciales	41	22	2,483	35
Cidra	22	18	1,470	25
Coamo	48	18	2,353	36
Comerío	18	17	2,446	31
Corozal	25	15	1,232	21
Culebra	..[c]	..[c]	236	..
Dorado	14	6	1,880	25
Guayanilla	25	13	2,512	30
Guaynabo	16	13	1,953	21
Gurabo	18	14	2,087	34
Hatillo	27	16	2,001	26
Hormigueros	5	5	1,340	25
Isabela	31	22	1,714	25
Jayuya	28	14	1,555	24
Lajas	35	12	2,280	27
Lares	38	27	2,667	44
Las Marias	31	11	1,477	18
Las Piedras	19	11	1,442	19
Luquillo	16	6	1,514	18
Maricao	21	9	1,282	16
Maunabo	11	8	1,247	21
Moca	27	17	1,049	14
Morovis	24	16	1,337	19
Naranjito	17	11	745	9
Patillas	28	14	1,754	26
Peñuelas	26	14	1,449	18
Quebradillas	13	10	1,111	19
Rincón	8	9	719	9
Río Grande	31	14	2,424	31
Sabana Grande	20	12	1,094	19
San Lorenzo	31	21	1,898	27
San Sebastián	43	24	2,186	37
Toa Alta	15	11	1,176	22
Toa Baja	13	7	3,142	30
Trujillo Alto	12	8	1,367	15
Vega Alta	16	11	1,672	39
Villalba	22	14	1,078	14

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[a] Cuerda=.99 acre. [b] Area, 663 cuerdas. [c] Small island of 839 inhabitants.

The principal town in each municipal district is the administrative center, from which its local government exercises the powers vested in it by the Insular legislature. These governments are autonomous under and within the limits prescribed by the Organic Act and the municipal law.

Each of the local governments is constituted a body politic, to "have perpetual succession and power (a) to adopt and use an official seal; (b) to sue and be sued; (c) to make judicial demand of obligations and to institute and defend all sorts of judicial proceedings; (d) to acquire property by purchase, exchange, donation or bequest, or by virtue of proceedings for the collection of taxes, or by condemnation proceedings, . . . and to possess, administer and govern such property; and (e) to alienate or encumber any of their properties. . . ."

New towns are constituted on petition of 25 per cent of the voters of the division or ward by the action of the legislature. The governing body and officers are appointed in such manner as the Insular legislature may decide until the next general election.

The annexation of a part of one municipality to another is effected in a similar manner.

Of the 77 municipalities in 1929, five are first class, 23 are second class, and the remaining 49 are third class.

Organization

The organization of the municipal government varies according to their size. In the first class cities, San Juan, Ponce, Mayagüez, Caguas, and Arecibo, the government is vested in an Assembly of eleven members, who are paid five dollars for each meeting attended,[7] a Mayor, and a Board of Administration. An outline of the organization of a first class municipality is given below:

A. Municipal Assembly (11 members)
B. Mayor
    1. Board of Administration
    2. School Director
    3. Director of Public Works

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[7] In second and third class municipalities, assemblies are composed of nine and seven members, respectively, whose remuneration is three dollars for each meeting attended.

    4. Director of Charities
    5. Municipal Treasurer
    6. Municipal Auditor
    7. Secretary of Municipality and Assembly

C. Justice of the Peace

In second class municipalities the law makes it mandatory for the mayors to assume the duties of the directors of public works, and in third class municipalities the duties of both public works and charities. The law further provides that other "offices may be consolidated . . . whenever the Assembly shall so resolve by two-thirds vote, . . . it being understood that in no case shall the offices of the treasurer and auditor be consolidated."

The Board of Administration is composed of all municipal department heads except the Auditor and Secretary. Its membership varies in second and third class towns, depending upon which offices have been consolidated.

The members of the Municipal Assembly and the Mayor are elected by the people for a term of four years. The department heads and subordinate personnel are appointed by the Mayor,[8] the former, with the approval of the Assembly, but they may be removed by the Mayor without the consent of the Assembly.

The specific duties of the several branches and departments of the municipal government are briefly outlined below:

Municipal Assembly. Subject to the limitations of the Organic Act the special powers of the Assembly are:

To approve the budget of receipts and expenses;

To sell, exchange, encumber, or lease municipal real property;

To authorize loans;

To levy reasonable taxes and excise taxes within the jurisdictional limits of the municipality; Provided, That ordinances levying such taxes and excise taxes shall be adopted by at least two-thirds of the total number of members of the Municipal Assembly, and must be approved by the Executive Council upon report of the Treasurer of Porto Rico;

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[8] Ordinarily their term of office is four years, the same as the elected Mayor.

To fill such vacancies as may occur among their members;

To appropriate in the budget the salaries of all municipal officers and employees;

To create and regulate municipal and school bands and to pay such expenses as are incurred out of the funds appropriated in the budget for public education.

Board of Administration. The duties and powers of the Board of Administration are:

To hold auctions and make awards;

To designate banks for the deposit of all classes of municipal funds, and the transfer of such funds, wholly or partly, from one bank to another;

To approve incidental expenses payable out of current or school fund appropriations;

To transfer funds from any current appropriation or school appropriation to any other similar appropriation; provided, That such transfers shall be made without restriction when they are to be made from funds available from savings in the respective items. In other cases they shall be made under the following limitations:

In first class municipalities, up to $1,000
In second class municipalities, up to $600
In third class municipalities, up to $300.

Transfers must be made by unanimous vote and only when reported on favorably by the Municipal Auditor.

Mayor. The Mayor (Alcalde) is the chief executive officer, and as such, represents the municipality in its corporate actions and activities and puts into effect the resolutions and ordinances of the Assembly. His general powers are:

To appoint the heads of all departments, subject to confirmation by the Municipal Assembly. He has the power to remove such officials, who may appeal to the district courts.

To appoint all municipal employees on recommendation of the heads of the departments and also the employees not included in said departments. He has the power to remove all such employees.

To call special meetings of the Assembly;

To prepare and submit to the Assembly a draft of the annual budget of receipts and expenditures;

To supervise and superintend all municipal activities;

To make such recommendations to the Assembly as he may deem desirable in the interests of the municipality;

To publish and execute all ordinances of the Assembly;

To assume direction of municipal public works in second class cities, and both public works and charities in third class cities, in addition to his duties as chief executive;

To designate others or to perform himself the duties of any administrative officer when absent on leave;

To render an annual report to the municipality and the Governor within the first quarter of each fiscal year;[9]

To forward to the Insular Treasurer annually copies of the budget and all acts of a legislative character;

To render such other statements and reports that may be requested by the Insular Treasurer and Insular Auditor.

School Department. The duties and powers of the School Director are:

To appoint elementary teachers subject to regulations and approval of the Insular Commissioner of Education;

To appoint and remove janitors, subject to approval of the Mayor;

To have general supervision over maintenance of school buildings.

The municipal law provides that to be eligible for appointment, the School Director "shall be or shall have been a public school teacher, or a person holding a license, diploma, or certificate as public school teacher or high school or university professor, or a person holding a professional license, high school diploma, or a bachelor's diploma, or who may have been school director or municipal commissioner of public education."

Public Works Department. The duties and powers of the Director of Public Works are:

To manage and direct all works of a public character;

To have charge of all municipal buildings, properties, and lands;

To fulfill all the requirements and perform all the duties and obligations imposed upon him by municipal ordinances, the laws of the Island, and the Organic Act;

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[9] Copy of this report is sent to Insular Treasurer.

In first class municipalities this position can only be filled by a engineer, civil or municipal, or by an architect.

Department of Charities. The duties and powers of the Director of Charities are:

To enforce both Insular and local health regulations, and to this end to cooperate with the Insular police who also have the same function;

To act as physician to the poor;

To have direct charge of all local institutions and matters relating to the public health and care of dependent classes in so far as such work falls within the jurisdiction of the municipal authorities.

The law provides in this connection, that "the director of charities shall be a physician and surgeon lawfully admitted to the practice of his profession in Porto Rico."

Municipal Treasurer. The duties and powers of the Treasurer are:

To bill all amounts due the municipality;

To collect all sums due the municipality;

To deposit all collections to the credit of the municipal treasury;

To pay all legal documents certified to him for payment by the Municipal Auditor;

To keep separate cash accounts of each distinct fund of the municipality.

Municipal Auditor. The duties and powers of the Auditor are:

To enforce collection of all amounts due the municipality;

To settle all claims in favor of, or against, the local government and to certify same to the Treasurer for collection or payment;

To keep the central accounts of the municipality and to render reports to the Mayor, the Insular Auditor and Insular Treasurer monthly;

To make an annual audit of the books of account and financial statements of the departments and establishments of the local government.

Municipal Secretary. The Secretary of the municipality acts also as the secretary of (a) the Municipal Assembly, (b) the Board of Administration, (c) the Board of Awards, and

(d) all other boards and committees created by the Assembly. His specific duties are:

To keep the records and minutes of the municipality;
To maintain the general files of the municipality;
To certify all ordinances adopted by the local Assembly;
To maintain the civil register.

Justice of the Peace. The Justice of the Peace is appointed by the Governor, but all expenses of peace courts are paid by the municipalities. The jurisdiction of these courts is limited to infractions of municipal ordinances and minor cases involving petty fines and short terms in jail. This office has been abolished in certain towns, and is not to be confused with that of municipal court judges, who are both appointed and paid by the Insular government.

Functions and Activities

The functions and activities of the 77 local governments in Porto Rico relate to the following branches of public service:

1. General Administration
2. Protection to Person and Property
    - (a) Fire Department
    - (b) Weights and Measures
    - (c) Collection of Stray Animals
    - (d) General Inspection
3. Highways
    - (a) Streets
    - (b) Roads and Bridges
    - (c) Public Lighting
4. Sanitation
    - (a) Street Cleaning
    - (b) Garbage Collection
    - (c) Sewers
    - (d) Sanitary Inspection and Disinfection
    - (e) Hospitals for Contagious and Chronic Diseases
    - (f) Public Baths
5. Charity
    - (a) Hospitals
    - (b) Dental Clinics
    - (c) Poor Relief
    - (d) Asylums
6. Corrections: Municipal Jail
7. Education
    - (a) School Inspection
    - (b) Instruction

    - (c) Scholarships
    - (d) School Lunches
    - (e) Buildings
8. Recreation: Playgrounds and Bands
9. Public Utilities: Commercial
    - (a) Aqueduct (Waterworks)
    - (b) Electric Light Plant
10. Public Utilities—Other
    - (a) Markets
    - (b) Meat Shops and Slaughter-houses
    - (c) Municipal Theatres
    - (d) Cemeteries

The above outline applies particularly to first class municipalities. In many of the second class and almost all of the third class towns no fire protection is afforded the population except some fire hose and a few fire extinguishers; many villages still have no artificial drainage except open gutters dating from Spanish times.

Sanitation, other than street cleaning and garbage collection, is looked after entirely by the Insular government. Funds for this purpose are obtained through retaining 6 per cent of the proceeds of the property tax of each municipality. Of other local government activities the following call for special remarks:

Education. Education is also supervised and operated directly by the Insular government in co-operation with the Municipal Director of Schools, whose sole responsibility is that of appointing elementary teachers, subject to approval of the Insular Commissioner of Education, and the operation and maintenance of school buildings.

Hospitals. But few of the third class municipalities have hospitals, and many of those that have built such structures are experiencing difficulty in financing their equipment and operation. Those which do not have hospitals maintain emergency stations where clinics are or at one of the local drug stores and charged to the municipality. If hospital treatment is required the patients are sent at public expense either to private hospitals or to municipal hospitals in adjacent towns.

In the main, accident and surgical cases receive hospital care. Acute, chronic, and prostration cases in the urban zone are brought to the clinics in hammocks or other conveyances.

The hospitals owned by municipalities are used almost wholly for charity cases, since pay patients prefer to be treated in private institutions.

Outside of the principal cities there is little systematic medical inspection of school children. The Insular Health Department vaccinates the pupils periodically and only investigates contagious cases called to its attention by the teachers.

Poor Relief. Poor relief apart from care of the sick is almost totally absent. Occasionally, families which are in distress because of sickness or unemployment are helped with a small dole of 5 cents to 40 cents a week.

The Insular government maintains two orphan asylums, one for boys and one for girls. In addition, private charitable institutions care for many orphans, especially girls, in some of the municipalities.

Courts and Jails. In towns where there are no municipal courts,[10] the Justice of the Peace serves as a committing magistrate. The municipal jails are used for offenders sentenced by the peace court for temporary commitments in graver cases pending bail or trial, and in many communities for temporarily housing insane patients requiring restraint.

Recreation. No recreational facilities are provided for the population except band concerts twice a week in some of the first class cities. A few municipalities have public playgrounds or athletic fields, thanks in some instances to the generosity of private donors.

Public Utilities. Of the 77 municipalities, 57 have municipal water works and three have them under construction. All but one of the municipalities are supplied with electric light. Twenty-six have sewer systems. Public markets and slaughterhouses exist in the more important towns. San Juan owns a municipal theatre and all the municipalities have one or more cemeteries.

Municipal governments possess only the authority expressly granted them by Insular law. Their debt incurring power is limited not only by local statute but also by act of Congress. The Insular legislature has specified the order in which outstanding obligations shall be paid when carried over from one budget to another, and provides that salaries shall be the last in order of these charges to be met. The fraction of the total budget that can be used for compensating officials and employees is restricted, ranging by various steps from 35 per cent in towns whose annual appropriations are $200,000 or more to 50 per cent in those whose yearly expenditures do not exceed $50,000. In some cases, also, a certain percentage of the town's revenues must be expended in its rural zone.

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[10] These courts are municipal in name only. Their judges are appointed by Insular authorities and are maintained from Insular funds. They often serve more than one town.

Criticisms and Recommendations

In the foregoing the attempt has been made to set forth the character of the system that has been provided by law for the government of the 77 municipal districts into which the Island is divided.

There is no question that this system in its practical operation has given, and is giving, results that are in the highest degree unsatisfactory. Thus, the Governor, in his message to the legislature on February 11, 1929, in discussing this subject, said:

> Several times the attention of previous legislatures has been called to the laws governing the municipalities of the Island, and I desire again to call attention to their defects and again to urge remedial action. There is no defense of the existing system made, and it appears to be universally condemned. Amendments have been made which have somewhat bettered conditions, but the drastic remedies required have not been secured.
>
> The present system of municipal government requires probably twice the expenditures that should be made for that purpose. The system is also ineffective. It does not furnish the service the people demand and expect, and is too often absolutely unable to operate at all. The deadlocks that occur between the Mayor and the Assembly, by which the people are deprived of all service and for which no remedy exists under present provisions of our laws, are a reproach to the Island. In many cases where economies are required no action is taken and the taxes levied for the service of the people are absorbed for salaries of the officers and employees. There is no doubt that offices should be consolidated and personnel reduced. There is no doubt that more effective checks against unnecessary expenditures should be provided. There is no doubt that it is necessary that provision should be made by which deadlocks between the Mayors and Assemblies may be prevented These changes can be made and these reforms secured by changes of the law which may be easily understood and which should be speedily enacted. The tendency of municipal reform in the States and elsewhere is in line with the above recom-

mendations. It is toward greater simplicity in organization, toward the smallest number of officials, and toward a greater concentration of power and responsibility. The continued unfortunate experience in the past in the Island should demonstrate the necessity of like action in Porto Rico.

The information obtained in the course of the present survey more than supports this characterization by the Island's chief executive. In the attempt that is here made to point out the responsibility for this unfortunate situation of affairs, and indicate means for improving conditions, attention is concentrated upon what are believed to be the most important, or fundamental, considerations rather than the details of organization or methods of administration.

Scope of Municipal Functions. In providing for a system of government for the administration of local affairs, one of the first problems that is presented is that of determining the functions that shall be entrusted to the local governments to be set up. To state this in another way, the question is presented of determining those functions or activities which are of such a nature that they can best be performed by the central, or Insular, government and those which can with greatest advantage be performed by the several local governments. The manner in which this division of functions has been made in Porto Rico is brought out by the following comparative statement of the activities of the two governments in the several fields of activities covered by them:

Insular Government	Municipal Government
ELECTIONS	
Supervised and financed wholly by Insular government.	
TAX LEVIES AND COLLECTIONS	
Assessed value of real and personal property fixed by Insular government. Collects all levies and turns over that portion assessed for local governments to Municipal Treasurer, less debt redemption levies.	Is authorized to levy reasonable taxes and excise taxes, but special property tax levy may not exceed 1 per cent of the assessed value of real and personal property. May levy other imposts, excise, or tax, upon any object that is not already taxed by Insular government.
AUDITING	
Insular Auditor post-audits all municipalities. Issues regulations governing the form of keeping accounts, rendering reports, and method of expenditures.	No legal obligation may be contracted for without certification of the Municipal Auditor as to available funds. No payments may be made by Treasurer without warrant by Municipal Auditor.

JUDICIAL

INSULAR GOVERNMENT (*Cont'd*)	MUNICIPAL GOVERNMENT (*Cont'd*)
All courts are Insular courts except as qualified in the opposite paragraph.	Municipalities fix and pay salaries of the justices of the peace and receive all fines paid for infraction of municipal ordinances.

PROTECTION TO PERSON AND PROPERTY

Insular Police Department provides protection to person and property.	Municipal police may be maintained by towns to enforce local ordinances, but very few provide this service, since Insular police service is supplied.
Deed and mortgage registration service provided by Insular registrars of property.	
The Insular government maintains district inspectors of weights and measures. (This service is generally confined to the urban zones and the well-traveled roads.)	All municipalities provide for some inspection of weights and measures. The municipal inspectors in the better governed towns make frequent inspections and usually are present at the public markets for the purpose of reweighing any purchases that buyers may care to have reweighed.

HIGHWAYS

Main roads and bridges built and maintained by Insular government.	Rural and urban ways built and maintained by local governments.

HEALTH AND SANITATION

Epidemic control; tuberculosis and anemia hospitals.	Maintains hospitals for contagious and chronic diseases and for emergency and casualty cases.
Performs all sanitation work except street cleaning, garbage collection, and sewage.	Cleans streets, collects garbage. Sewer and sewage disposal.

CHARITIES, HOSPITALS, AND CORRECTIONS

Insane asylums, orphan asylums, school for blind, deaf, and mute, district jails, and penitentiary.	Outdoor relief. Hospitals. Clinics, dispensaries, and dental service to school children. Municipal jail for short sentences and temporary commitments.

Insular Government (*Cont'd*)	Municipal Government (*Cont'd*)
EDUCATION	
Insular (State) University.	
Employs all regular teachers, inspectors, and supervisors, in the public schools, and pays all such salaries out of Insular funds.	Nominates and pays such temporary elementary teachers as may be employed by municipality to supplement those of the public school system paid by Insular government.
Approves appointments of supplementary elementary teachers nominated by municipal school director.	
Grants all teachers' licenses.	Provides supplies to supplement those furnished by Insular government.
Provides courses of study, books and supplies.	Pays house rent and traveling expenses of supervisors.
In some towns have built (a) rural schools, and (b) high schools in poorer municipalities.	Supplies school lunches to poor students.
Superintends construction of all municipal school buildings.	Supplies janitor service and maintains all school buildings.

The following are the most important facts brought out by this statement:

Administration of Justice. The function of the enforcement of laws, both civil and criminal, has been entrusted almost wholly to the Insular government. The police function is wholly performed by an Insular police force, though the municipalities are given authority to employ inspectors or other officials having a quasi-police power to enforce municipal ordinances.

The system of the administration of both the civil and criminal law in the courts is likewise vested almost wholly in Insular tribunals, though provision is made for a Justice of the Peace court in most municipalities. These courts have the very limited jurisdiction of passing upon infractions of municipal ordinances and the handling of petty offenses involving small fines and short terms in jail. In municipalities where there is not a district court, these courts also act as committing magistrates. In like manner the system of penal institutions is an Insular one with the exception that the municipalities have the maintenance and operation of jails for the confinement of prisoners sentenced by the Justice of the Peace courts and the temporary confinement of other prisoners.

Health and Sanitation. In respect to health matters, primary responsibility resides with the Insular government. The municipalities, however, maintain a so-called Department of Charities, which, in effect, is a Department of Health. At the head of this department there is a Director, who must be a physician and surgeon lawfully admitted to the practice of his profession in Porto Rico, who acts as physician to the poor. In most, if not all, cases there is maintained by this department a hospital or clinic, though these institutions are often of a primitive character. It would appear, furthermore, that the head of this department has a certain general responsibility in respect to the enforcement of both Insular and local health regulations.

Education. In respect to education, the school system of the Island is predominantly an Insular one, though the municipal authorities participate to an extent in the operation of certain features of this system.

Public Works. Responsibility for the construction and operation of all public works of general importance, and particularly the road system of the Island, is vested in the Insular government. The municipalities have authority to construct and maintain purely local roads, though the work done by them in this respect is of relatively little importance. The construction and maintenance of other public works of a local character are functions of the municipalities in which they are located, though in respect to the construction of these works at least large avail is had of the facilities of the Insular Department of Public Works.

Financial System. Responsibility for the assessment and collection of the property tax is vested entirely in the Insular government. The proceeds of this tax constitutes much the most important source of income of the municipality. From the revenue standpoint, the function of the municipality is thus restricted to the imposition and collection of certain business licenses, taxes, and other minor receipts. The settlement and audit of claims is made by a Municipal Auditor, but the Insular Auditor has additional powers of inspection and audit, the scope of which in practice has only recently been very well defined.

Elections. The conduct of elections, municipal as well as Insular, is wholly an Insular function.

Reviewing this situation generally, it will be seen that, in respect to almost every branch of public administration, not only does primary responsibility reside in the Insular government, but that government directly has charge of the administration of the activities and defrays the expenses involved. While this is true, a certain participation has in almost every case been given to the municipality. For example, while the administration of justice is vested in the Insular government, the municipalities have the office of Justice of the Peace and the maintenance of a local jail; while the maintenance and operation of a school system for the Island is an Insular function, the municipalities are permitted to participate in the way of nominating temporary elementary school teachers, who are paid from municipal funds, in supplying janitor service, and in certain other ways.

General Scheme of Government. The question naturally presents itself, whether those services which are now primarily and predominantly Insular should not be made exclusively so. Division of responsibility is always to be avoided if possible. It is suggested, for example, that the administration of justice should be made wholly an Insular function. This would mean that the Justice of the Peace courts, in so far as they should be retained, should become Insular tribunals, the justices themselves being appointed by the Governor upon the nomination of the Attorney General. In like manner, the maintenance and operation of the local jails might be made an Insular function and supported from Insular revenue. This would integrate the several agencies having to do with the enforcement of law, the police, the prosecuting attorneys, the courts, and the penal institutions.

It is suggested that the same policy might be pursued in respect to education. In view of the evidence gathered by this survey, it is difficult to see how the participation of the municipalities in the way in which they do participate contributes anything to the efficient administration of the school system. The participation of the municipalities divides responsibility and complicates in many ways the administration of school affairs.

In like manner the construction and maintenance of all public roads might be vested in the Insular government, as has often been proposed in the past. Even if the power is left to the municipality to appropriate money for the construction or improvement of local roads, the expenditure of such money and the work of construction and improvement could be performed by the Insular public works department. The Insular public works department has a competent personnel and it is quite probable it could do this work more efficiently and economically.

A similar concentration in the Insular government of the entire function of the promotion and protection of the public health would presumably be advantageous. This would require that the Insular Department of Health should embrace a field establishment of district health officers, one or more such health officers being located in each of the 77 municipalities. These officers, as a part of their duties, would have charge of the local hospitals and dispensaries, which would become Insular institutions. They would also take over the work of the existing Insular sanitary inspectors, or if these officers were retained they would be subject to the supervisory authority of the district health officers. This field establishment of health officers could be organized into a public health corps analogous to the Insular police, the salary being graded according to the importance of the post and provision being made for various grades and a system of promotion from one grade to another. Under this system a high esprit de corps might be developed and opportunity afforded to the health officers for promotion according to merit. This field corps could be brought together from time to time for general instruction, and possibly for the receipt of practical experience in connection with the Insular hospitals.

If this policy of severe concentration of responsibility in the Insular government is put into effect almost the only remaining functions to be performed by the municipal governments would be those having to do with the administration of affairs concerning urban areas. These matters would be such as those pertaining to the lighting of streets, the construction of sewers, the disposal of sewage, the operation of systems for the supply of water, etc. In view of this, the question would be raised as to whether the entire system of municipal government as it now exists should not be fundamentally changed. This change, it is believed, should take the direction of wholly doing away with the existing system of dividing the Island into municipal districts. In its place would be substituted a system providing simply for the setting up of local governments for the various urban areas. This scheme of purely urban governments should, of course, take into account the differences in the size and consequently the importance of these areas. The towns proper of the first class, San Juan, Ponce, Mayagüez, Caguas, and Arecibo, might be given a government not greatly dissimilar from the one they now have. A somewhat simpler government could be provided for the towns of intermediate grade and an exceedingly simple government for those towns having a comparatively small population. For this latter class it is suggested that a board of three commissioners, one acting as chairman and chief executive officer, one as secretary, and one as financial officer, and serving for a small or nominal compensation, would meet all requirements.

One of the incidental advantages that would result from this change would be doing away with the existing situation, which has given rise to much complaint, that, while taxes are paid by property owners in the rural as well as the urban portions of municipalities, the expenditure of municipal funds is made predominantly for the benefit of the inhabitants of the urban areas. Under the system here suggested property owners in the rural districts would no longer contribute to the support of town governments. Their taxes would be paid wholly to the Insular government, which would thus secure the additional money needed in order to defray the additional expenditures resulting from the greater burden of work thrown upon it. It may be necessary also for the Insular government to make grants in aid to those towns not able to finance their limited operations through their own resources.

This recommendation to abolish the division of the Island into municipal districts, to concentrate in the Insular government the performance of all governmental activities other than those relating strictly to urban affairs, and to set up a scheme of government for the urban areas may seem to be a revolutionary one. It should be remembered, however, that the total area of Porto Rico does not greatly excxeed the area of many counties in the United States. It must be recognized, furthermore, that in a country such as Porto Rico it is difficult to secure persons qualified to perform public functions. It is practically impossible for the 77 municipal districts of the Island to secure as technically competent a personnel as can be secured by the Insular government. It may be stated as a general principle that the more backward a community is in respect to its economic, educational, and political development the greater the necessity for the concentration of responsibility in a central organization.

Any proposal such as that above, if made prior to the adoption of the Jones Act in 1917, would have met the legitimate opposition of the inhabitants of Porto Rico that such a change would have as its effect to increase the power of the government that was largely controlled and administered by persons appointed by the President of the United States and to a considerable extent not native inhabitants of the Island. This objection no longer obtains since, under the new form of government provided for by the Jones Act, the legislative branch is now entirely in the hands of native Porto Ricans and the same is true in respect to the direction of most of the administrative departments.

Power of Governor to Remove Municipal Officials. Whether the change in the system of local government above recommended is made or not, the Governor should have conferred upon him the power and duty of removing any municipal official whose conduct has been such as to make it inadvisable that he should continue to perform the duties of his office. This power is one that is possessed to a considerable extent by the Governors of a number of states in the American Union. If the possession of such power is found to be desirable in the United States it is much more desirable in a country such as Porto Rico, where the problems of efficient administration are so much more difficult.

Audit. In Porto Rico as on the continent the legal status of a local government is that of an agent created by the central government. The relationship between the Insular government and the municipal government is that of principal and agent. The agents have been entrusted by their principal, the Insular government, with certain powers and duties. Wherever power is delegated it is the duty of the delegating authority to see that the agent to which the power is delegated properly performs its duty. This, as stated, applies on the continent as well as in Porto Rico. The most effective method of which a principal can inform itself of the manner in which an agent is performing its duty is to have a careful audit of its income and expenditures made by its own representative. One of the important changes that should be made in the existing scheme of government of all of the municipalities, is to abolish the office of Municipal Auditor and to impose upon the Insular Auditor the duty of systematically auditing the accounts of the municipal governments. In making this recommendation a clear distinction should be drawn between the two operations of the settlement of claims and of audit. If the office of Municipal Auditor is abolished, some other municipal officer should then have the function of settling all claims against the municipality. The function of the Insular Auditor should be restricted to that of audit, strictly speaking; that is, of subsequently examining the financial transactions and reporting the results of such examination. In reporting such examination the Insular Auditor should not merely report upon the fidelity with which transactions have been carried on, but also upon the wisdom with which moneys have been appropriated and expended and the efficiency with which the work of expenditure has been effected. These reports would furnish to the Governor the facts upon which he could base his action in the exercise of such powers as may be vested in him of removing municipal officials guilty of misconduct or failing to administer their offices with a reasonable degree of efficiency in regard to the public interest.

Number of Municipal Districts. It would be improper to close this discussion of the problems of local government without commenting upon the opinion often expressed that an outstanding defect of the existing system of municipal government in Porto Rico, is the excessive number of independent municipal districts, and that a great economy in expenditure could be secured by the consolidation of these areas into a much smaller number of districts. Theoretically, this may be so. Actually, however, experience has demonstrated that it is exceedingly difficult to get a government of local affairs that is satisfactory to all of the inhabitants where a municipal district is made to include a number of centers of population. Even under existing conditions there is complaint that one part of a district, the rural part, is taxed for the benefit of another part, the urban part. If a municipal district includes several towns or centers of population, one of these towns would have to be made the municipal capital, and even with the best intent on the part of those in charge of affairs, grounds of complaint would arise that the town constituting the seat of government was being favored at the expense of the other towns. Human nature being as it is, it is quite likely that such favoritism would be more or less deliberately displayed. It is probably due to this, combined with the sentimental attachment of the people to their own towns, that the number of separate municipalities has been increased rather than diminished. Whatever might be the theoretical advantages of a consolidation of existing municipalities into a smaller number, it is exceedingly doubtful whether it would give results that would be satisfactory. Some 15 years or more ago a consolidation of municipal districts was effected. The results were such, however, that this work of consolidation had to be reversed.

One of the great advantages of abolishing the scheme of municipal districts and of making provision simply for local governments for urban areas would be the meeting of this difficulty.

Summary. To recapitulate, the existing evils characterizing the municipal government in Porto Rico cannot be met by any mere tinkering with the existing form of municipal government. What is required is an entire recasting of the whole system. This recasting, as has been pointed out, it is believed should take the form of:

1. Concentrating in the Insular government exclusive responsibility for the performance of many functions which are now divided between the Insular government and the municipal governments;

2. The abolition of the division of the island into municipal districts and of the existing form of government for those districts and the erection in its place of a scheme of government for urban centers only;
3. The strengthening of the powers of the Insular Governor to enforce a good administration of local affairs by local officials by giving to him the power to remove municipal officials whose conduct is such as to justify such action; and
4. The abolition of the office of Municipal Auditor and the vesting of the audit function in the Insular Auditor.

CHAPTER VI

PUBLIC EXPENDITURE AND REVENUE

I. EXPENDITURE

Federal Contributions and Exemptions. In considering the revenue system of Porto Rico attention should first be directed to the fact that the Federal government makes a substantial contribution to the support of governmental activities in the Island. This contribution takes two forms. In the first place the Federal government, through its own agents and at its own expense, maintains certain services. The more important of these are: the maintenance and operation of military and naval posts, a lighthouse system, a weather bureau station, and an agricultural experiment station. The Federal government also maintains and pays the expenses of the Federal court and pays the salary and mileage of the delegate from Porto Rico to the House of Representatives. It also has extended to the Island the benefits of the second Morrill Act and the Nelson amendment for the maintenance of colleges of agriculture and mechanic arts, in virtue of which the Island receives from the Federal treasury an annual grant of $50,000.

Second, and of greater financial import, the Federal government has relieved the inhabitants of the Island from the payment into the Federal treasury of practically all Federal taxes. The Island's inhabitants are thus exempt from the Federal income, inheritance, and excise taxes. As a result of this exemption, the Island has been placed in a position where it can itself levy taxes of these kinds, the proceeds of which constitute Insular receipts. While the customs service is administered by the Federal government the net proceeds of customs collections in Porto Rico are turned into the Insular treasury. Furthermore, Congress has provided that all Federal excise taxes paid on cigars, cigarettes, and the like, produced in Porto Rico, but sent to the United States, shall be refunded to the Insular treasury. Were Porto Rico a state or an organized territory of the United States, this special treatment would not be possible.

Total Cost of Government. Porto Rico's combined Insular and municipal expenditures from both general and special funds, for the fiscal year 1927-28, were as follows:

	Thousands of Dollars	Dollars Per Capita
Total expenditure, excluding debt service......	22,416	15.46
Interest on debt............................	2,297	1.58
Total annual cost of government..............	24,713	17.04
Payment of debt.............................	2,116	1.46

Two-thirds of the total is expenditure of the central Insular government and one-third is that of the 77 municipalities or local governments.

Total cost of government is assumed to include both cost of "operation" and costs of acquiring permanent improvements, and the latter are taken to be costs of the year in which they are acquired. In other words, whatever is paid for is a cost of government, though in any one year, admittedly, the figures may include an abnormal expenditure of a non-recurring character, and if this is true it is a fact to be noted. In the years dealt with in the figures to be submitted below, the cost of permanent improvements is great but not abnormal.

Recent official reports of Porto Rico are not prepared in such a manner that the total cost of government analyzed by functions can be ascertained. Because of the obvious importance of the subject, reference was made to accounting records, including departmental records, and after a great deal of work, fairly representative grand totals and functional totals were arrived at. It must be said, however, that the statistics of municipal expenditure practicularly are drawn from sources that are not very accurate. Some figures were published locally that were obviously misleading, while others were obtainable only under non-functional heads. In some cases, data were available which justified the use of approximate methods of dividing expenditures functionally. Finally, in the case of municipal expenditure, a large sum is assigned in our statistics to the class miscellaneous or undistributable.

Although this defect, and possibly others, involve what is as an absolute amount a large sum, the inaccuracies are small in relation to the grand total and to the subtotals for functional groups, which are fairly representative.

We obtain a rough measure of the degree of development of Porto Rico's government activities by comparing the per capita expenditure with corresponding figures for other countries. In the following table such a comparison is undertaken with aggregate expenditures of the 48 American states and their local subdivisions, with national, provincial, and local expenditures of Cuba, and with Insular and local expenditures of Jamaica, it being premised that all such comparisons have problematical value on account of varying conditions in different countries.

Comparative Data on Per Capita Expenditure[a]

<table>
<tr><th>Area</th><th>Total Expenditure Excluding Debt Service</th><th>Interest on Debt</th><th>Payment of Debt</th></tr>
<tr><td>Porto Rico (Insular and local)......</td><td>$15.46</td><td>$1.58</td><td>$1.46</td></tr>
<tr><td>United States (State and local)......</td><td>58.22</td><td>5.46</td><td>2.88</td></tr>
<tr><td>Cuba (National, Provincial and local)</td><td>30.33</td><td>1.41</td><td>1.61</td></tr>
<tr><td>Jamaica (Insular and local).........</td><td>11.09</td><td colspan="2">2.00</td></tr>
</table>

[a] As to source of figures for Porto Rico, see preceding page. Figures for the United States, from National Industrial Conference Board, *Cost of Government in the United States*, 1926-27, p. 14. Figures for Cuba, from *Gazeta Oficial*, January 26, 1928, for 1926-27, pp. 6-7 and from mimeographed copy of the report of the *Comisión de Estadística y Reformas Económicas*, 1928-29, the latter for provincial and municipal expenditures. For the expenditure of the Public Works Special Fund the revenue is used to represent expenditure. Figures for Jamaica, from expenditure columns of the Colonial Estimates of 1928-29, p. 4.

Making every allowance for differences in salaries, price levels, and problems, it may be concluded that government services have been developed to a much less degree in Porto Rico than in the United States. Apparently also Porto Rico is behind Cuba. On the contrary, there is reason to suppose that Porto Rico may be in advance of Jamaica.

Porto Rico's public services, though small compared with those of wealthier states and nations, place her in a fairly select group among small Latin American countries. It is impossible to present dependable figures for total national and local government expenditure in the poorer Latin American republics, but it may be safely assumed that nearly all of them have a lower effective expenditure per capita than Porto Rico, particularly after deducting payments for debt service, war, navy, and police. In most of the poorer countries local government expenditure is small, and the total per capita national expenditure is below that of Porto Rico.[1]

The development of Porto Rican government services to a level approaching the present is a comparatively recent achievement. The total annual cost of government has increased by 169 per cent during the past ten years. The Insular and municipal total of the fiscal year 1917-18 was $9,194,000, or $7.17 per capita. The relatively low per capita expenditure eleven years ago shows the situation as left by the efficient but less liberal government under the Foraker Act. While the Island was administered by officials appointed directly from Washington and Washington appointees constituted the upper house of the legislature, public services and taxation were held to very moderate limits, efficiency in government was emphasized, and each dollar spent certainly went farther than an equal sum spent today.

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[1] Corliss, James C., *Latin American Budgets* (Department of Commerce).

Functional Cost. The following table shows the cost of government by functions:

COST OF GOVERNMENT, BY FUNCTIONS, 1927–28

Items	Insular		Municipal		Totals	
	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*
GENERAL GOVERNMENT	**2,376**	*14.4*	**799**	*9.5*	**3,175**	*12.8*
Legislation	122	*0.7*	38	*0.4*	160	*0.6*
General administration	1,202	*7.3*	625	*7.4*	1,827	*7.4*
Justice	559	*3.4*	39	*0.5*	598	*2.4*
Land and buildings	493	*3.0*	97	*1.2*	590	*2.4*
PROTECTION	**1,574**	*9.6*	**167**	*2.0*	**1,741**	*7.0*
National Guard	66	*0.4*	—	—	66	*0.3*
Police	839	*5.1*	—	—	839	*3.4*
Penal institutions	349	*2.1*	54	*0.6*	403	*1.6*
Fire	—	—	72	*0.9*	72	*0.3*
Various	320	*2.0*	41	*0.5*	361	*1.4*
EDUCATION	**4,852**	*29.4*	**1,214**	*14.4*	**6,066**	*24.5*
Public school system	4,137	*25.1*	1,214	*14.4*	5,351	*21.6*
University and library	715	*4.3*	—	—	715	*2.9*
SOCIAL WELFARE	**1,603**	*9.7*	**1,756**	*20.9*	**3,185**	*12.9*
Health and charity	1,548	*9.4*	1,289	*15.3*	2,663[a]	*10.8*
Municipal sanitation	—	—	418	*5.0*	418	*1.7*
Parks and music	55	*0.3*	49	*0.6*	104	*0.4*
HIGHWAYS AND STREETS	**2,248**	*13.7*	**969**	*11.5*	**3,217**	*13.0*
Supervision	92	*0.6*	86	*1.0*	178	*0.7*
Highways	2,156	*13.1*	374	*4.4*	2,530	*10.2*
Streets	—	—	509	*6.1*	509	*2.1*
ECONOMIC DEVELOPMENT	**950**	*5.8*	—	—	**950**	*3.9*
Agriculture	416	*2.5*	—	—	416	*1.7*
Water power	508	*3.1*	—	—	508	*2.1*
Harbors and other works	26	*0.2*	—	—	26	*0.1*
UNDISTRIBUTED TOTAL	—	—	**808**	*9.6*	**808**	*3.3*
PUBLIC UTILITIES	**1,681**	*10.2*	**1,590**	*18.9*	**3,271**	*13.3*
Telegraph	222	*1.3*	—	—	222	*0.9*
Workmen's homes and settlements	79	*0.5*	—	—	79	*0.3*
Irrigation	1,349	*8.2*	—	—	1,349	*5.5*
Municipal utilities	31	*0.2*	1,590	*18.9*	1,621	*6.6*
GRAND TOTAL, EXCLUDING DEBT SERVICE	**15,284**	*92.8*	**7,303**	*86.8*	**22,413**[a]	*90.7*
INTEREST ON DEBT	**1,193**	*7.2*	**1,104**	*13.2*	**2,297**	*9.3*
TOTAL COST OF GOVERNMENT	16,477	*100.0*	8,407	*100.0*	24,710	*100.0*
Payment of term debt	923	—	1,193	—	2,116	—

[a] Does not include $174,000 paid by the municipalities to the Insular Government.

The "General Government" group accounts for nearly 13 per cent of the total expenditure. The title "Legislation" requires no comment. "General Administration" is a conspicuously large item, and under this heading are included costs of a considerable number of essential offices. The principal Insular items are:

Governor's Office	$51,511
Auditor's Office	131,955
Treasurer's Office:	
General	45,391
Tax Collection	620,754
Attorney General's Office	89,307
Code Commission	18,165
Civil Service Commission	15,948
Executive Secretary's Office:	
General	39,400
Supplies	63,611
Translation Bureau	22,898
Board of Elections	61,338
Government of Culebra	8,720
Historian and Historical Archives	7,590

The Insular total, including some minor items not given in the above list, is $1,202,000 in round numbers.

The municipal total is $625,000 and is unquestionably excessive, due to the top-heavy form of organization prescribed for municipal government. The large items in the Insular general administrative costs, except auditing, should be very small items in the municipal accounts, as, for example, tax collection, legal advice, and elections, which are functions in which the Insular government assists or serves the municipalities and which account for all but about $400,000 of the Insular administrative overhead. The figure $625,000 does not include municipal salaries chargeable to functions such as public works, education, and social welfare, and thus omits functional overhead, which is also excessive.

The next large item of the general government charges is that for administration of justice, $598,000. This is the expenditure of the Supreme Court, 7 district courts, 35 municipal courts, and 56 justices of the peace. The Attorney General has recently proposed to abolish certain courts and thus effect savings.

The large figure for public lands and buildings, $590,000, is made up principally of charges for construction, $404,000, excluding such building construction as belongs to some other functional group. The greater part of this construction charge is due to the building of the new Insular capitol, a structure which may be expected to cost over $3,000,000 when completed.

Expenditures under the next general group of functions, "Protection," are remarkable for being low, a little over 7 per cent of total expenditure. The policing of the Island is handled efficiently and economically by the Insular government. There is no expenditure for national defense except $66,000 for the National Guard. It is, perhaps, strange that Porto Rico should pay any part of the cost of its National Guard, since its low income is accepted as justifying an exemption from Federal taxes. The expenditure for penal institutions, $403,000, is not excessive. Under the final subheading, "Various," the larger items are as follows:

I. Insular	
Office of Bank Examiners: Department of Finance	$12,863
Public Service Commission	41,497
Bureau of Weights and Measures: Office of Executive Secretary	31,286
Registrars of Property	89,552
Racing Commission	37,682
Athletic Commission	12,655
Bureau of Labor, Department of Agriculture and Labor	53,231
II. Municipal	
Weights and Measures	31,898

Other Insular functions belonging to this group include the soil, fertilizer, and feed inspection service of the Department of Agriculture and Labor (the expenditure is accounted for under the head of agriculture because not obtainable separately), warehouse inspection, and professional examinations under several separate boards.

Of the total of $6,066,000 in the education group, $4,852,000 is Insular expenditure and $1,214,000 is municipal. The administration of the school system is largely centralized in the Insular Department of Education, which spent $116,000, excluding the costs of the force of district supervisors of education. However, each municipality has a school director with unimportant functions, and the statistics show the cost of these offices and related supervisory expense to have been

$99,000. Teachers' salaries are paid by the Insular government and to a limited extent by wealthier municipalities which wish to extend their public schools. The total paid for salaries was $3,921,000. Educational results from the present public school expenditure are measurable roughly by saying that every part of the Island has its school or schools and that in addition to providing secondary instruction in the principal towns the department enrolls in its elementary classes nearly 80 per cent of the total legal school population, between 8 and 14 years of age. Half-day sessions are necessary very generally to provide this enrollment. The capacity and the quality of the schools in different parts of the Island are not as uniform as they should be because of the method of financing education by a combination of Insular and local revenue.

The group "Social Welfare" comprises the costs of hospitals, asylums, health inspection and other health activities, municipal street cleaning, garbage removal, and sewage disposal, and relatively unimportant costs of an Insular park and of municipal music.[2] Insular costs in this general group amount to a total of $1,603,000, practically all of which is expenditure of the Department of Health. There are a number of Insular institutions, the accounts for which aggregate an expenditure item of less than half of the Insular total. Antituberculosis activities, suppression of anemia, and sanitary inspection are large items in the Department of Health accounts. Expenditures other than those of the Department of Health include donations to charity by the Insular Racing Commission ($13,000), small sums spent by the medical, dental, and pharmacists' examining boards, and park expenditure ($55,000). Health work proper, excluding care of insane, blind, and deaf, costs $1,156,000. Municipal hospitals and clinics, asylums, and dental clinics expended $552,000. An additional $235,500 under the title "Poor Relief" was spent, mostly for medicines for the poor. Overhead of the municipal offices of the Commissioner of Health and Public Charities accounted for $177,000. The total municipal expenditure for health and charity was over $1,000,000, including a moderate estimate of $140,000 for new construction. Municipal health

[2] Costs of maintaining municipal plazas are included under streets.

work on a large scale is limited largely to the wealthier municipalities because the public revenue in poor, and particularly mountain, municipalities is extremely low. The death rate is lower, however, in these mountain municipalities than in the richer communities along the coast. Of the $418,000 spent for municipal street cleaning, garbage removal, and sewage disposal, $40,000 is estimated expenditure for construction of sewerage systems and waste-disposal plants.

Porto Rico's excellent system of highways has been provided almost exclusively by the Insular government. At the present time, a system of primary or primary and secondary highways is practically completed. Most of the money spent on road work comes from special funds, figures for which do not appear in the general accounts and were obtained through the courtesy of the Department of Interior. The statistics of Insular expenditure for 1927-28 show the following:

Supervision, including a share of departmental overhead....	$92,000
Road maintenance, exclusive of asphalting..................	754,000
Asphalting	614,000
New construction....................................	788,000
Total	$2,248,000

Figures for the municipal governments were obtainable only in a form which made it necessary to resort to rough estimates to arrive at total highway and street costs. It seems safe to conclude that over $300,000 was spent by municipalities on rural roads, much of the expenditure being of little result. One hundred and eighty-five thousand dollars is reported as expended for street lighting, and it may be estimated that over $300,000 also was spent upon street construction and repair inside the so-called urban zones.

The Insular government spends more for "Economic Development" than might be expected. There is no municipal expenditure in this group. Under "Agriculture" is included the agricultural and forestry work of the Department of Agriculture and Labor ($384,000) and the Tobacco Guarantee Agency in New York City ($32,000). The latter, strangely, is under the Department of Finance. Agricultural expenditure, without doubt, has brought real returns. The $508,000 expended for water power development represents construction paid for by a special tax levy, and is in addition to the irrigation districts' heavy outlay upon water power, which is not included in this figure, since irrigation operations are classed with public utilities. In 1928 a half-million dollar bond issue was sold in the name of the South Porto Rico Irrigation Service for carrying out new hydroelectric projects. Large sums were also expended for the same purpose in the new Isabela Irrigation District. The use of any large amounts of tax revenue for developing water power, in addition to the regular irrigation district investments, seems to imply the existence of an emergency which as a matter of fact was not discovered.

The final functional group, "Public Utilities," includes Insular expenditure of $1,682,000 and municipal expenditure estimated at $1,590,000. Of the Insular expenditure, $1,097,000 represents additions to the permanent investment in irrigation districts. Of the municipal total, $1,107,000 is the estimated increase in municipal utility assets. The great activity of the Insular government in extending irrigation is a striking feature of its policy. It operates public irrigation systems through the Department of the Interior, which has charge of public works. The same department operates the telegraph, including some telephone lines. A Homestead Commission administers a limited number of government-owned workmen's houses and farm settlements. Public piers, in both San Juan and Ponce, are under the direction of boards with ex-officio members and members appointed by the Governor. Municipal utilities include 60 publicly owned water supply systems, many public electric plants, markets, slaughter-houses, municipal theatres, and cemeteries. Three-fifths of the total operating expenditure is accounted for by water works. It is significant that the principal municipal public utility is the one which is essential in the interests of health. The rapid increase of investment in these services accounts for the numerous special tax levies; for bonds are issued for constructing these works and the debt is carried by tax levies instead of by revenue earned.

The large sums expended by the Porto Rican government for interest make this final group of charges a heavy item. This burden is divided almost equally between Insular and municipal debt. Generous use of the borrowing power has been a characteristic of Porto Rican government financing only within recent years.

Comparative Functional Costs. Having explained the meaning of the general groups of expenditures appearing in the table of functional costs, these group totals expressed in dollars per capita may be compared with similar functional group costs of other governments. Statistics in suitable form at least roughly comparable are available for state and local governments in the United States, national, provincial, and local governments in Cuba, and Insular and local governments in Jamaica.

PER CAPITA EXPENDITURES FOR GOVERNMENT SERVICES

Expenditures Classified	Porto Rico (Insular and local)	United States (State and local)	Cuba, (National, provincial, and local)	Jamaica (Insular and local)
General government........	$2.19	$4.39	$7.20	$1.08
Protection	1.20	6.15	7.06	1.60
Education	4.18	19.25	4.31	.84
Social welfare.............	2.20	8.39	2.19	1.19
Highways and streets......	2.22	13.91	6.79	1.98
Economic development.....	.66	.62	([a])	([a])
Undistributed	.56	1.35	1.26	2.39
Public utilities............	2.26	4.16	1.52	2.01
Total, excluding debt service	$15.47	$58.22	$30.33	$11.09
Interest on debt...........	1.58	5.46	1.41	1.00 [b]
Total cost of government	$17.05	$63.68	$31.74	$12.09 [b]

[a] Included with highways and streets.

[b] The figure for interest is an estimate; the published reports show only the total debt service.

These figures make evident the fact that Porto Rico's government services are small in comparison with those of state and local governments of the United States. They suggest that the principal fields of expenditure in which Cuba is ahead of Porto Rico are first, public works, and second, the non-constructive military items included under protection and perhaps government overhead.[3] Cuba is now making great strides in building roads and other public works. Comparison with Jamaica brings out the fact that education there accounts for a relatively small expenditure.

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[3] It cannot be stated certainly that the figures for government overhead are comparable.

II. REVENUE

Taxable Resources. Since Porto Rico is a relatively poor country it is forced either to adopt a low public service standard or to levy unusually heavy taxes.

The annual income of Porto Rico is believed to be about $160,000,000. This is a rough guess, since sufficient data are not available to permit an appraisal approaching in accuracy that of the income of the United States.

Of this total, the income of the very poor amounts to approximately $50,000,000,[4] leaving about $110,000,000 against which taxes should be levied.

Total Insular and municipal taxes collected in Porto Rico in 1927-28 amounted to a little less than 18 million dollars,[5] or over 10 per cent of the total estimated income. Excluding the income of the very poor classes, the weight of the tax burden expressed as a percentage of income is above 16 per cent.

Total taxes amount to $12.36 per capita, which figure can be regarded as the index of the tax support of public services. It is expressed in dollars per capita because the needs for public funds have a fairly definite relationship to population.

Total taxes of nearly 18 million dollars do not include customs. Because of the complicated effects of the protective tariff, both upon the Island's income and upon prices paid in the Island, there is no way to measure the burden of the tariff as a tax. The burden may perhaps be correctly attributable to protection only.[6]

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[4] The aggregate cash payroll of the Island, for wage-earners receiving less than $1,500 a year, is estimated by the insurance compensation authorities to be $58,000,000.

[5] The problem of obtaining figures for total taxes and other revenues was similar to that of obtaining figures for total expenditures as described above in the discussion of total cost of government. The general fund figures are derived from statements by the Treasurer and Auditor which differ from published figures for collections principally in stating all items in the greatest possible detail so as to facilitate reclassification. Special fund figures were derived from department reports and from statements prepared by the departments or Auditor. Municipal revenue figures were derived from the municipal statistics prepared by the survey staff and Auditor's Office from the Auditor's records except the general property tax which was incompletely reported in the statistics and was obtained from the Treasurer's and Auditor's reports. It must be recognized that the municipal statistics do not give a very adequate picture of smaller tax items.

Growth in Total Taxes. Total taxes collected in Porto Rico have increased by over 12 million dollars, or 204 per cent, in 10 years. The following table shows this remarkable growth and also that of earlier decades:

GROWTH OF TAXES, 1897-1928

Fiscal Year	Total Insular and Municipal Taxes [a]	Total Taxes per Capita	Total Taxes as a Percentage of Total Income
1897-98	$2,460,000	$2.62	Unknown
1907-08	3,750,000	3.45	Unknown
1917-18	5,880,000	4.65	5 [b]
1927-28	17,920,000	12.36	11

[a] The figures, in round numbers, exclude duties on imports. The Spanish customs, however, did not have the virtue of protecting a major industry of the Island. Including import duties, the taxes of 1897-98 were $4,309,000, or $4.58 per capita. The figure for municipal taxes, 1897-98, is an estimate.

[b] In order to show the recent growth in taxation in its true perspective it seemed necessary to state an income figure for the year 1918. The estimated income for the year is 80 per cent of the income of 1928 and probably may be regarded as a minimum. Thus, the growth in taxation in relation to income from 1917-18 to 1927-28 may be expressed as a growth of *not less than* the difference in the figures as shown.

Rough calculations of probable income of the Island before the year 1918 lead to the belief that the total taxes under American government of the Island were at no time before 1918 above 5 per cent.

Total Taxes in Porto Rico and in the Entire United States Compared. Total taxes collected in Porto Rico expressed as a percentage of total estimated income are about equal to the corresponding percentage for the United States as a whole.

Total taxes per capita are nearly six times as great on the Continent as in the Island.

The marked recent growth in Porto Rico's total taxes has not been shared by the United States, but a relatively slight change in total taxes in the United States between the end of the war and recent years is accounted for by the fact that Federal taxes have been reduced, and this reduction has served to compensate largely for great increases in state and local taxes.

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[6] The customs receipts of 1927-28 were $1,932,000.—*Auditor's Report*, 1928, p. 4.

The following figures show these relationships:

TOTAL TAXES COLLECTED IN THE UNITED STATES AND PORTO RICO [a]
(Customs receipts excluded)

Taxes	Amount per Capita		*Taxes as a Percentage of National Income*	
	United States	Porto Rico	*United States*	*Porto Rico*
Total:				
Recent	$72	$12	*10*	*11*
10 years ago	65	5	*10*	*5*
Federal:				
Recent	24	...	*3*	..
10 years ago	37	...	*5*	..
Combined State or Insular, and local:				
Recent	48	12	*7*	*11*
10 years ago	28	5	*5*	*5*

[a] Figures for a recent year are for 1927 for the United States and for 1927-28 for Porto Rico. Figures for ten years ago are for 1919 for the United States and for 1917-18 for Porto Rico.

Figures for the United States are from the Department of Commerce, *Statistical Abstract of the United States*, 1928, p. 164, and from the National Industrial Conference Board, *Cost of Government in the United States*, 1926-27, p. 60. The estimates of national income are taken from National Bureau of Economic Research, *Recent Economic Changes*, p. 763.

These figures indicate, first, that during the past ten years the United States increased its support of public activities in a vastly greater absolute amount than Porto Rico; second, that Porto Rico has achieved a position comparable with that of the United States as to the weight of the tax burden, but far below the United States as to the support of public activities. Until recently Porto Rico carried a materially lighter tax burden than that of the United States, in spite of the evident need of funds for essential services.

This comparison with the United States, therefore, seems to justify the marked increase that has occurred in Porto Rico's taxes. It remains to be considered, however, whether local conditions peculiar to the Island may not make this comparison inapplicable. Therefore, it is desirable to compare the tax burden in Porto Rico with that imposed upon other nations with low per capita incomes. To arrive at correct conclusions as to the effect of this burden, moreover, it will be necessary to consider also the individual sources of revenue and the relative weight which taxes bear upon the various classes of the population and upon business.

Total Taxes Compared with Total Taxes in Poorer American States. Statistics of total income by states have not been compiled for years since 1919, 1920, and 1921. In some of the states, 1919 may be regarded as roughly comparable with 1927-28, but the relation of 1919 income to present income cannot safely be relied upon as a basis for computations of percentages of total taxes to income. The 1919 figures may be used merely to determine which states are the poorest and in general the relative level of poverty in those states as compared with Porto Rico.

Statistics of 1919 show the following eight states to be the poorest:[7]

State	Total Current Income, Per Capita 1919
Alabama	$321
Mississippi	328
Tennessee	346
Arkansas	352
North Carolina	367
Kentucky	378
Georgia	379
South Carolina	390

Figures showing state and local taxes per capita by states have been compiled for the year 1926[8] and compare with taxes per capita in Porto Rico as follows:

State or Territory	Insular or State, and Local Taxes Per Capita
Porto Rico	$12.36
Alabama	14.63
Georgia	16.67
Arkansas	17.52
South Carolina	22.01
Tennessee	23.13
Kentucky	25.22
North Carolina	28.97
Mississippi	32.86

Each state also has to carry a burden of Federal taxation, which presumably exceeds $10 per capita even in the poorest state. The relative support given government services by the poorer states and by Porto Rico, respectively, is shown in the above table, but in comparing their total tax burdens allowance must be made for Federal taxes, which do not appear in the figures given.

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[7] Levin, Maurice, *Income in the Various States, 1919, 1920, 1921*, p. 261. As to the validity of introducing 1919 figures at all, see, National Bureau of Economic Research, *Recent Economic Changes*, 1929, pp. 824, 826, 828.

[8] National Industrial Conference Board, *Cost of Government in the United States*, 1926-27, p. 73.

Although it is impossible to set forth the ratios of taxes to present income for these or other states, it may be noted that they are by no means equal in all states and that in some cases taxes amount to a considerably higher percentage of income than they do in Porto Rico, while in other states they are lower.

Sources of Tax Revenue. The following table shows Porto Rican tax revenue for the fiscal year 1927-28 analyzed in the manner suggested by the following paragraphs.

REVENUE FROM TAXES, 1927-1928
(Figures are in thousands)

Tax	Total	Insular	Municipal
TAXES REPLACING FEDERAL TAXES	$4,723	$4,723	—
Income tax	2,178	2,178	—
Tobacco excise	2,545	2,545	—
GENERAL PROPERTY TAX	7,570	2,460	$5,110
SPECIAL ROAD TAXES	1,161	1,161	—
Gasoline tax	620	620	—
Motor vehicle licenses	541	541	—
INHERITANCE TAX	276	276	—
TOTAL PRINCIPAL TAXES OF CLASSES UNIVERSALLY LEVIED IN THE UNITED STATES	13,730	8,620	5,110
OTHER TAXES	4,192	3,795	397
General sales tax	1,020	1,020	—
Motor vehicle sales	582	582	—
Other sales taxes	431	333	98
Races and pools	262	262	—
Sugar production	605	605	—
Business licenses	627	358	269
Registration of property, notarial instruments, etc.	362	362	—
Insurance taxes	77	77	—
Government contracts	43	43	—
Franchise taxes	9	9	—
Tobacco guarantee tax or fee	71	71	—
Other taxes or fees related to special services	103	73	30
GRAND TOTAL [a]	$17,922	$12,415	$5,507

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[a] The figures include special funds but exclude revenue other than that from taxation. The total of Insular taxes as stated here is by chance almost equal to the total Insular revenue as published in tables which ignore special fund revenue.

In deciding whether a source of revenue is a tax or a fee, a rule has been followed which includes under taxes practically all obligatory payments, whether of kinds generally called taxes or of the sort termed fees.

In 1901 Porto Rico adopted an American system of taxation. The amendments made to tax laws from time to time since that date have also been governed as a rule by ideas imported from the United States. Remnants of Spanish taxation are almost negligible. New ideas adopted in Porto Rico and not in general use in the United States, are confined to the general sales tax and a few special sales taxes. Out of a total of nearly 18 million dollars of taxes collected in 1927-28, only about three or four millions were derived from imposts not well recognized in our Federal, state, or local systems.

Since no Federal taxes are collected in Porto Rico, the Insular government is free to levy contributions corresponding to the Federal internal revenue taxes on incomes and tobacco, and $4,723,000 is obtained from these sources.

Of the remaining 13 millions of Insular and local taxes, $7,570,000, or 57 per cent, is derived from the general property tax. This percentage is low, compared with the percentage of state and local taxes in the United States derived from the same source. In 1922, when the census compiled figures of state and local taxation, in over half of the states the general property tax furnished 85 per cent or more of the state and local tax revenue. At that time there were only two states—Virginia, 69 per cent and Delaware, 57 per cent—in which the percentage was below 74 per cent.[9]

The relatively small share of Insular and local revenue derived from the general property tax is one of the distinctive features of the Porto Rico revenue system as compared with those in our states.

Having deducted Porto Rican taxes which replace the Federal taxes and also the general property tax, there remains only $5,629,000 out of the total of nearly 18 millions. In order to continue the comparison with state systems it is of interest to deduct still other items, such as special road taxes, the gasoline tax and motor vehicle licenses, and the inheritance tax. These, as well as the general property tax, are now found in the tax systems of every state. In Porto Rico the special road taxes amount to $1,161,000, and the inheritance tax amounts to $276,000. After deducting this group, the remainder is $4,192,000.

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[9] National Industrial Conference Board, *The Fiscal Problem in Delaware*, p. 101.

It is this last figure which accounts for the fact that the general property tax percentage is low, so it may be said that the originality of the Porto Rico system of taxation is in the existence of a relatively large group of miscellaneous minor taxes.

The total of "Other Taxes" includes two millions of sales taxes and almost two millions of miscellaneous business taxes. The items which are of special interest are the general sales tax, the motor vehicle sales tax, a few other sales taxes, the taxation of races and pools, the sugar production tax, the registration of property, notarial instruments, affidavits and other stamp taxes, and the government contracts tax. Franchise taxes are unusually low.

The American reader can gain a far better idea of the Porto Rico tax system from the comparison with American taxation already given than he can in any other way, but a further picture of the sources of tax revenue may be obtained from the following statement, in which a comparison is made of taxes in 1927-28 and those ten years earlier, showing only totals of principal groups or classes of taxes. The sugar production tax is shown separately, and by itself constitutes a distinct class of tax, namely, a tax on production for export.[10] Taxes and parts of the yield of taxes justified fully by special government expenses appear in this table in the last two groups.

TAX REVENUE, BY SOURCES, 1917-18 AND 1927-28

Source	In amount (thousands of dollars)		*Percentage Distribution*	
	1927-28	1917-18	*1927-28*	*1917-18*
Property tax	7,570	2,733	*42.2*	*46.5*
Income and inheritance tax	2,454	620	*13.7*	*10.5*
Consumption taxes	4,684	1,597	*26.1*	*27.2*
Other business taxes:				
Sugar	605	....	*3.4*	....
Other	1,024	608	*5.7*	*10.3*
Special road taxes:				
Gasoline and motor vehicle licenses	1,161	81	*6.5*	*1.4*
Other taxes and fees justified by expenses	424	241	*2.4*	*4.1*
Total	17,922	5,880	*100.0*	*100.0*

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[10] The words "for export" are justified by the fact that nearly all of the sugar production is for export. The tax is levied upon all production.

Almost every group shows a remarkable growth during the ten years. Rates of taxation have been increased particularly in the case of the levies upon property and income. The growth of the consumption taxes is due in considerable part to imposts on articles not formerly taxed. Sources of revenue under the earlier American administration of Porto Rico, from 1901 to 1918, changed very little and the growth in amounts was due principally to rising values of taxable property. During the Spanish period customs duties were heavy and produced most of the Insular revenue. There were *consumo* taxes, collected by the municipalities, which still further added to the burden on articles of consumption, including the food of the poor. There were also taxes on incomes from land and from business.

Distribution of the Tax Burden Upon Various Classes. From the information available as to wealth and expenditures of various classes of the population, it is possible to estimate the distribution of the burden of each class of tax. The question of interest is not as to who pays the taxes in the first instance, but as to whose expenditure is affected by the taxes directly or indirectly in the final analysis; or in other words, to discover the incidence of the tax burden.

In considering this question of taxation, it is convenient to recognize four general groups of taxes: (1) Property tax, (2) income and inheritance taxes, (3) consumption and other taxes with incidence ordinarily upon the consumer, and (4) all other taxes.

The incidence of the property tax is more difficult to trace than that of any other. The tax on land must be considered separately from the tax on other property because it does not normally affect the rent of the land and can not be shifted, although in case of long term leases of sugar lands, where the lessee and not the owner almost invaribly pays the taxes, this is not true of additional taxes levied during the term of a lease. On the contrary, the tax on property other than land generally raises the annual cost of providing such property by the full amount of the tax, or in other words, is shifted by the owner to the user of property if the two are not identical. Out of a total of assessed values of $341,371,000, $154,543,000 is land value and $186,828,000 is the value of properties other than land. The total property tax paid on land is estimated as $3,300,000, of which $2,450,000 is paid on agricultural or other rural land and $850,000 is paid on urban land. The tax on property other than land is estimated as $4,200,000, of which perhaps $3,000,000 is urban and $1,200,000 rural.

In order to trace the incidence of the property tax upon property other than land, it is necessary to divide such property, according to its functions into three main groups: (1) Property used by the population to meet personal wants and not for business; this group includes principally houses; (2) property used by business which sells or offers services locally; (3) property used by business which sells abroad or by manufacturers whose local selling prices are determined by competition from abroad. The importance of this grouping rests, first, upon the fact that taxes in group one increase the costs borne under normal conditions by those who occupy houses or use other property; second, taxes on business property fall on the users of the property in the first instance, but like all other business costs, they will be paid finally out of income provided by those who buy from the business; third, the costs of a business selling locally affect local prices, which means that the tax is shifted to the community, while the tax on export business can not be shifted. Likewise, the tax upon a manufacturer who competes with foreign manufacturers normally can not be shifted.

Consequently, a similarity exists between the land tax and the tax upon property other than land when used in export business or manufacturing. Normally neither can be shifted beyond owners of wealth.

A tax on houses is very different because it is shifted to the mass of tenants who occupy houses. A tax on personal automobiles falls on the users. A tax on the property of a business engaged in local trade, and in fact upon most general business property, adds to costs paid by the mass of customers who buy from the firm conducting the business. In other words, this tax, like the tax on houses, is shifted to consumers.

By taking up the several classes of improvements and personal property one by one, it is not difficult to arrive at a rough estimate of the assessed values attributable to those who use property to satisfy personal wants, to business selling in a local market, and to export and manufacturing business. The total value of all houses and personally owned automobiles is probably between 50 and 60 million dollars. The urban personal property of 59 million dollars, electric light and telephone plant of six million dollars, and urban buildings other than houses, above 20 million dollars, gives a total of over 85 million dollars, which is chiefly devoted to local business. Rural improvements, excluding houses, amount to 39 million dollars, and rural personal property to four million dollars, or a total of 43 million dollars, largely devoted to sugar or other export business. Allowing for a considerable amount of urban property devoted to manufacture, 50 million dollars can be assumed to be a rough measure of the assessed value of property used in export and manufacture. Examination of the assessed values of classes of property, item by item, support the latter figure, but it is not to be regarded as necessarily accurate.

The result of these calculations is to show roughly what part of the property tax falls finally upon owners of wealth and what part is in effect a variety of consumption tax. The incidence of over three million dollars of land tax and perhaps about a million dollars of other property tax upon production for export and manufacturing, a total of perhaps four and a quarter million dollars, follows the ownership of the wealth of the Island. The incidence of the rest of the property tax, amounting to three million dollars or more, is upon the great mass of consumers.

Some notion as to the distribution of part of the property tax which follows wealth can be gained from an analysis of land ownership. The following table shows values of farms divided into groups according to the sizes of the farms, as compiled from the assessment rolls:

PROPORTION OF TOTAL TAX BURDEN BORNE BY FARMS OF DIFFERENT AREAS

Size of Farms (in acres)	Assessed value of each size group		Cumulative Percentage	Residual Percentage
	In Millions of Dollars	As Percentage of Total		
Less than 5	6	5	5	100
5-9	7	6	11	95
10-19	10	8	19	89
20-49	17	14	33	81
50-99	16	14	47	67
100-499	39	23	80	53
Over 499	24	20	100	20
All farms	119	100		

Small holdings are not in all cases owned by individuals who own no other land. The tax records show 57,000 individual owners and 82,000 holdings. Furthermore, the small holdings in some cases are owned by urban dwellers. The figures, therefore, give an imperfect picture of the division of ownership. The smallest group, it should be added, is not supposed to represent the poor. All landowners may be expected to have incomes at least a shade above those of the great mass of poor.[11]

From the above figures checked to a certain extent by information from the income tax returns we may judge that the small group of rich might own above a third of the rural land.[12] It may be supposed that the rich own a higher percentage of taxable town land. In all they may pay more than a third of the land tax or over a million dollars.

Those kinds of business which are important in exporting and manufacturing are owned almost entirely by the rich. The rich may pay a million dollars of property tax, exclusive of land tax, on the property of such business.

Of the four and a quarter million dollars of property tax which follows the ownership of wealth, the rich must pay nearly one-half, or perhaps over two million dollars. The other half, approximately, is land tax and must be paid by the large group of persons of moderate incomes who are smaller landowners.

The part of the property tax which tends to increase the rent of houses and the prices paid by consumers, amounting to over three million dollars, is to be divided more or less according to the expenditure of the several classes of society and falls principally upon neither the very poor nor the rich, but upon several hundred thousand persons in a middle income group. The poor are principally in the rural areas and are affected very little by the tax on houses. Also their purchases are principally of food, and the prices they pay for food can not be very greatly influenced by taxation of the dealers. In all, out of the total of three millions of taxes on houses and local businesses, not more than a few hundred thousand dollars can be supposed to be paid by the poor. The rich number only a few hundred, have relatively small aggregate expenditures, and occupy comparatively little house space, but they pay a large share of the taxes upon property used by firms and professions which serve the sugar industry and other export trade and manufacture. In dividing a total tax of over three million dollars, the share of the rich can be assumed to be at least several hundred thousand dollars.

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[11] Moreover, lands and tenements valued under $100 are not taxed or assessed, and therefore are not included in this table.

[12] In 1917, 477 individuals, partnerships, and corporations owning more than 500 acres of agricultural land held title to nearly one-third of the assessed rural land valuation of the Island.

Nearly all of the income and inheritance tax is paid by groups that must be considered to be wealthy, judged by Porto Rican standards. Typical individual income tax assessments in recent years have produced from three to four hundred thousand dollars in taxes, of which less than a sixth is assessed upon individuals having incomes of less than $10,000 per annum. It is safe to assume that nearly all of the corporation tax is paid by the wealthy. The partnership income tax, levied at a high rate and not providing personal exemptions, is the only part of the income tax that is doubtful, but the total amount is not large; from two to four hundred thousand dollars. The whole amount of income and inheritance tax collections in 1927-28 was $2,454,000, of which over two millions were paid by the rich, and what was not paid by the rich must have been paid principally by investors rather than by workers of the middle income group.

Under the head of taxes borne more or less directly by consumers are the following taxes:

Taxes with Incidence upon Consumers	Collections (In thousands of dollars)
General sales tax	1,020
Tobacco consumption	2,545
Sales of matches	97
Various special sales taxes	163
Races and pools	262
Motor vehicle sales	582
Gasoline	620
Motor vehicle licenses	541
Meat sales (municipal)	94
Public spectacles, films, and boxing matches	78
Business licenses	627
Government contracts	43
Insurance taxes	77
Franchise taxes	9
	6,758

All of the above taxes are not always entirely shifted to consumers or paid by them, but by far the greater part of each undoubtedly is generally so shifted or paid. To trace their normal incidence, it is necessary to find who the consumers are.

The general sales tax does not fall upon food sales and, therefore, is paid but to a small extent by the poor. A questionnaire answered by 139 rural families indicated that over 98 per cent of the income was required for food, and, although this percentage may be too high, it may be accepted that the poor spend little for articles subject to the general sales tax. The tax may be assumed to be paid almost wholly by the middle income groups.

The tobacco taxes are paid by the poor in considerable amount. The questionnaire answered by workers indicated that rural workers spent over 1 per cent of their income for cigarettes, while urban workers of very low income spent over 2 per cent for cigarettes. The total income of a million poor inhabitants of the Island is in the neighborhood of 50 million dollars, which would mean that they may pay $600,000 for cigarettes in a year, on which there is a tax of $300,000. The rest of the tobacco tax paid by the poor would be small. Most of the tobacco tax must fall on the middle group.

The automobile taxes are paid principally by the middle group and to some extent by the rich. Those imposed upon the 2,849 public automobiles and the 3,946 trucks used in the Island, however, probably add to the cost of personal and freight transportation for all classes, even including the poor.

The business licenses are paid mainly by the middle group and to a limited extent they affect the rich. Small municipal licenses upon dealers in food tend to affect prices paid by the poor.

The tax on government contracts is obviously paid by the government.

The rest of the taxes listed above—matches, races and pools, public spectacles, various special sales taxes, meat sales, and franchise taxes—are relatively unimportant. The poor pay a share of the match tax, less of the meat tax because they consume little meat, and very little of some of the special sales and admissions taxes which are upon luxuries. The franchise taxes happen to affect export business largely. Nearly all of the total of these small taxes is paid by the middle income group.

The following are the principal remaining taxes:

Miscellaneous Taxes	Collections (In thousands of dollars)
Tax on notarial instruments, etc	149
Tax on registrations of deeds, mortgages, etc	191
Tax on affidavits	22
Sugar production tax	605

The first three items fall in the first instance upon business enterprises and property owners and their final incidence is on the middle income group and the rich. The sugar production tax falls upon the owners of land growing cane and perhaps to some extent upon sugar manufacturers.

General Conclusions as to the Distribution of the Tax Burden. Bringing together the preceding considerations we may form a general conclusion as to the total tax burden upon each group in the community.

The great mass of poor pay very little in taxes. Their share of the property tax is principally the indirect result of taxes on houses and on merchants selling food, and can not be more than a few hundred thousand dollars. They also pay several hundred thousand dollars in taxes on tobacco. Their total tax burden can not be many hundred thousand dollars, or more than a very small fraction, perhaps 2 or 3 per cent, of the income of the group.

The middle income group pays two-thirds, more or less, of the land tax, or over two million dollars; a great part of the taxes which fall upon expenditure, including the property tax on houses and on business selling in a local market, which is also probably over two million dollars; and the consumption and shifted business taxes, exceeding six million dollars. It is reasonable to suppose, therefore, that the total taxes paid by the group are well above ten million dollars.

The few rich pay perhaps a third, or over a million dollars of the land tax, the bulk of the property tax on improvements and personal property of the sugar manufacture and certain other lines of business, which amounts to more than a million dollars, the income tax of about two million dollars, the inheritance tax of a quarter of a million dollars, and a share of the several classes of consumption and business taxes, the latter principally as owners of exporting and manufacturing companies which are to be counted among the consumers. The total is probably above five million dollars.

This total of taxes paid by the rich is a third of the amount of net income of corporations, plus that of wealthy individuals as shown by the income tax returns. That the rich pay on an average approximately that percentage of their incomes—or even more—is indicated also by the ratio of business taxes to net income and by other figures as to individual taxes which are quoted on later pages.

In practice, therefore, the present tax system is highly progressive. The poor escape a heavy burden, and the rich pay a very large share of their income to the government. In the intermediate groups as to wealth and income, those who own property pay a higher percentage of their incomes in taxes than those who do not. The sales taxes have a somewhat progressive effect among those whose personal wants absorb their entire income, because, as the income decreases, the percentage spent for food increases and food expenditure is not taxed. The effect of the sales and license taxes on motor vehicles, and of the gasoline tax, is progressive.

It is obvious that the distribution of the tax burden is bad in so far as it permits any tax whatever to fall directly upon the poor. It is to be criticized also in that those with relatively large incomes who do not own real and personal property in the Island escape with a light burden, and those with relatively small incomes who do own property pay a heavy tax. These and other defects of each of the taxes will be considered later.

Business Tax Burden in Porto Rico and in the United States. Such information as is available seems to indicate that the business taxes in Porto Rico and in the continental United States are about equally heavy. It has been seen that total taxes amount to about the same percentage of income in Porto Rico as on the mainland, and other evidence suggests that this equality extends to taxes upon business in general. The tax on agricultural land, however, may be a little lower in relation to income in Porto Rico than in the United States as a whole.

To offset this difference, consumption taxes, which are paid by final consumers to a greater extent than by business, are relatively higher in Porto Rico.

The information available which bears out these conclusions includes the following figures obtained from analysis of the corporation income tax returns:

COMPARISON OF TAXATION AND NET INCOME OF CORPORATIONS IN PORTO RICO AND THE MAINLAND[a]

Corporation Taxes, Including and Excluding Income Tax, as Percentages of Net Income[b]

Corporation	Continental United States, 1927				Porto Rico (Sales Tax Excluded) 1927			
	All Corporations		Corporations with Net Income		All Corporations		Corporations with Net Income	
	All Taxes	All Taxes Except Net Income Tax	All Taxes	All Taxes Except Net Income Tax	All Taxes	All Taxes Except Net Income Tax	All Taxes	All Taxes Except Net Income Tax
All classes......	58.5	37.4	34.1	19.7	46.8	31.6	37.9	24.7
Agricultural and related industries.........	393.1	303.9	40.1	27.1	43.8	29.4	40.4	27.0
Manufacturing:								
All...........	41.3	21.6	26.9	12.1	......	....	......	....
Sugar........	......	....	......	....	44.3	30.2	38.9	25.0
Other........	......	....	......	....	28.9	16.5	23.8	13.0
Trade..........	50.5	29.6	28.8	15.4	103.5[c]	77.1[c]	30.4	18.1

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[a] Source: Treasury Department, *Statistics of Income of 1927*, and analysis of the Porto Rican income tax returns, made by the Department of Finance in co-operation with the staff of the Survey.

[b] Net income excludes tax exempt income and is computed as prescribed for income tax purposes, but with a deduction of income tax paid.

[c] Evidently these are not representative figures. Among the companies showing no net income were a group of large tobacco dealers with great assets upon which property tax is paid. Conditions as to these companies being abnormal, the whole group is abnormal.

It is obvious, of course, that the prosperity or depression of an industry greatly affects net income and the percentages which taxes bear to income vary accordingly. The years for which figures are submitted in the above table were normally prosperous, except that in 1927 many mainland agricultural corporations lost money, and some large tobacco companies operating in Porto Rico experienced a trade depression. Aside from the figures reflecting these special conditions the correspondence between data for the continental United States and for Porto Rico is fairly close.

The weight of the tax burden upon business should be analyzed further to distinguish between what may be called elastic and inelastic taxes; that is, those which vary with income and those which are fixed. The income tax is the principal variable tax, and the property tax is the principal fixed charge. In case of corporations, the property tax may be expected to amount to a relatively larger burden in Porto Rico than on the Continent due to differences in real estate owned rather than to differences in tax rates. Similarly in the case of individuals the income tax must be somewhat heavier on the mainland because the average taxpayer there pays a greater surtax. On the other hand, the Porto Rican law levies a relatively higher income tax upon partnerships. On the whole the weight of the fixed or property taxes in relation to income seems to be more or less comparable in the two countries.

Evidence seems to indicate that the property tax in Porto Rico in recent years has taken a smaller percentage of agricultural income than the property tax on farms in most of the states. The tax rate on agricultural property in Porto Rico is about 2 per cent, which, corrected for the estimated average under assessment, means 1.5 per cent of full value. Tax rates in the continental United States vary greatly, and higher rates than 1.5 per cent of the true value are not unknown, while yield of agricultural land is, or recently has been, very low. Rates have been increasing both in the Island and on the mainland, and on the Continent at least they have reduced the income of the farm-owners to an extent that constitutes a serious tax problem. In Porto Rico it may be argued that the higher taxes have been covered by higher incomes, although one's conclusion on this subject depends upon the date with which he makes a comparison. In 1920 taxes were low and income was high. After the abrupt drop in agricultural profits the following year, a gradual recovery occurred, which may have enabled incomes to keep pace with rising taxes until the hurricane of 1928 upset all calculation of this character.

The Tax Burden Justified by Necessity. The comparisons which have been made in the preceding pages and the conclusions reached as to the distribution of the tax burden upon various classes of the population, surely will not be interpreted to indicate the necessity for a radical change in the government's fiscal policy. It seems to be clear, on the contrary, that the Island is able to support the present tax burden if necessary in order to carry on essential public services.

Present taxes, however, are high; they must be regarded as a heavy drain upon the resources of the wealthy which should be available for the development of the Island and as restricting to a limited extent the already inadequate consumption of the poor. Almost all classes, directly or indirectly, contribute generously to the support of the government relatively to their capacity to pay.

Possible measures for increasing revenues can be studied only by taking up in turn each form of taxation which it may be proposed to modify. In the following chapters a number of ways to add to the public income are pointed out, notably the use of special assessments, an increase in the gasoline tax, a revision of licenses on heavy motor vehicles, and perhaps some additions to individual income tax rates in the lower brackets. The discontinuance of tax support of road and public utility construction and certain adjustments in tax levies are also suggested, in order to make funds already collected available for other use. On the other hand, proposals are advanced for a general reduction in property tax rates and the repeal of undesirable special sales taxes.

The total burden of taxation and the burden upon each of the various classes in the community, dealt with so far in the aggregate, do not fall equally upon all persons in the several taxpaying groups. Accidental inequalities in property taxation are particularly conspicuous; certain individuals pay at rates more than double those applied to their more fortunate neighbors or competitors. Under these circumstances large numbers of taxpayers are carrying a much higher burden than that indicated in studying the aggregate and averages for the country as a whole. This inequality constitutes one of the principal present tax problems.

CHAPTER VII

TAXATION

I. THE GENERAL PROPERTY TAX

Porto Rico's general property tax is assessed and collected by the Insular government and the yield is shared with the municipalities. The total of Insular and municipal collections in the fiscal year 1927-28 was $7,570,000. Tax rates in the various municipalities vary from a minimum of 1.65 per cent to a legal maximum of 2.65 per cent. The same rate is applicable to all classes of taxable property and the prescribed rule for its assessment is the "actual value, without looking to a forced sale."

This tax was established after the American occupation. It may be said to have replaced, however, a Spanish tax levied upon income from land, calculated with the intention of obtaining 5 per cent of the owners' net income from the property. The present law was part of the revenue act of 1901. Most of the modifications of that act were made during the first few years of its operation.

A notable feature of Porto Rican tax legislation is the exemption of nearly all intangibles except bank capital. The law also contains complicated provisions designed to secure the taxation of corporations upon the excess of their capital value over the aggregated assessed value of their otherwise taxable assets.

Taxable Property. Property subject to assessment is that belonging to the taxable person or in his possession on January 15 of any year when an assessment takes place. A section of the law (294) states that "stocks of material or merchandise shall be assessed upon their average market value during the year next preceding," but this clause is in conflict with other provisions of the law and is not observed.

The definition of taxable property is involved and in places contradictory. The law states that the property to be assessed for taxation shall include real and personal property; that real and tangible personal property with a fixed location shall be assessed in the municipality where they are located; and that all other personal property, whether in Porto Rico or elsewhere, shall be assessed where the owner resides. Personal property includes bonds, stocks, patent rights, trade marks, franchises, concessions, and other things capable of private ownership, but does not include "book-credits, promissory notes nor other personal credits" (Section 290; also 297, 298). Among exemptions in another section, however, are "indebtedness owed by a taxable person, association or corporation," and the capital stock of corporations, and of joint-stock and limited liability companies if their shares are taxed under Section 316. This section relates to the taxation of the real property of corporations and companies and not to the taxation of their shares, but the intention is assumed to be to apply to stock the same exemption as to indebtedness. The net result is to make Porto Rican real estate and personal property taxable, but to exempt all intangibles except patent rights, trade marks, copyrights, franchises, concessions, bonds and stocks of companies outside of Porto Rico and government bonds not exempted by Federal or other Insular law.

Actually, however, merchants and corporations are taxed on bank deposits to a limited extent, although these are "book-credits," while no evidence was obtained of the taxation of bonds and stocks of companies outside of Porto Rico. Some of the assessors insist that all intangibles except money in bank are legally exempt.

The law attempts to tax the so-called "corporate excess." While it prescribes a procedure for fixing the value of the real property of corporations which is not essentially different from the procedure for other taxpayers, special provisions exist for taxing the personal property of corporations and of banks. "The present actual value" of the property "shall in no case be less than the value of the capital stock and bonds plus the surplus and undivided earnings . . . nor less than the market value of the real and personal property. . . . From the value thus obtained shall be deducted the total valuation of the real property . . ., and the remainder shall be deemed to represent the personal property . . . for purposes of taxation" (Section 317).

In the case of non-Porto Rican corporations "only such part of the capital . . . shall be considered and assessed as is employed in Porto Rico."

The interpretation to be given to the law is affected by a court decision[1] which states that the values of assets which are exempt must be deducted from the assessment. Therefore, nothing is left of the assessment of items from the liability side of the balance sheet unless unrecorded "goodwill" is taxed by assessing stocks and bonds at market rather than par value. It is possible that the framers of the law intended that corporations should be assessed upon the market value of stocks and bonds, but examination of the actual procedure followed showed no case where an attempt has been made by the Department to fix the assessments on market value. Until 1926 efforts were sometimes made to construe the law so as to tax the book value of stocks, surplus, and bonds.

Experience with the law leads to the belief that it can not be applied fairly. As a general rule the market value of stocks is difficult or impossible to determine. The law calling for the taxation of "corporate excess" is in any event not enforced so as to reach market values which exceed book values, and therefore accomplishes nothing.

While the procedure described has been in force at least nominally for other corporations, banks have, in effect, been subject to a special tax by virtue of a section of the law which says that their shares shall be assessed to the owners at the fair market value. The fair market value basis, however, has been abandoned because it was found to be impracticable to enforce and instead the banks are assessed on the par value of stock, plus surplus and undivided profits. This change has been made without legal authority.

Exempt Property. The exemption of intangibles which has been referred to and which applies uniformly except for the taxation of bank capital, amounts principally to an exemption of values which represent rights secured by, or interests in, property taxable in Porto Rico. The exemption of book credits and promissory notes, however, embraces sums owed by persons abroad. Of intangibles representing property abroad, stocks and bonds are taxable.

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[1] No. 3789, 35 D. P. R. 917, as revised July 7, 1927, 37 D. P. R. 114.

The usual exemption is given to government property and to churches. Also, as is not uncommon, exemption is extended to property used by lodges or for educational, literary, scientific, or charitable purposes not involving profit. Cemeteries are exempt.

Growing crops and products of the land in the hands of the producer are exempt. All household furniture and clothing is exempt, but not furnishings of hotels or restaurants or other places of business. Hand tools are exempt but not agricultural or other machinery. Provisions and fuel are exempt if held for consumption.

Finally, no tax is levied upon the "property of persons whose total property is assessed for less than $100" (Section 291).

Special laws exempt three railroads and one hotel company for periods of years stated in the acts. A few tobacco growers' co-operatives are also exempt.

The Public Service Commission is authorized to grant exemptions to new industries for a period of not over 10 years (Act 16, 1925). On June 30, 1928, 31 such exemptions had been granted, nearly all of them for a period of five years.[2] The total value of the exempted property is not very great, as few large enterprises have so far received this favor. The law was first enacted in 1919 (Act 92, 1919).

Under another act, land newly planted in coffee or forest may be assessed at one dollar an acre for a period of five years. The Department of Agriculture is required to inspect the properties to see that the conditions stated in the law are complied with. Up to June 30, 1928, 4,174 acres of land had been certified as entitled to the benefit of this law.[3] By action of the Board of Review and Equalization, apparently not authorized in the statute creating that body, assessments on all coffee lands were reduced to one dollar an acre after the hurricane of 1928.

Organization and Cost of Collection. The Bureau of Property Taxes is one of three principal tax divisions of the Department of Finance. It is headed by a chief receiving a salary of $3,300. The Bureau has had a total permanent force of 35 office employees and 20 assessors, not including collectors of internal revenue who report to the chief of this Bureau. In addition to the permanent staff, a large number of temporary appointees are employed in various clerical operations.

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[2] Public Service Commission, *Report*, 1927-28, p. 38.

[3] Act 19, Laws of 1925; Commissioner of Agriculture and Labor, *Report*, 1927-28.

The cost of assessing and collecting the general property tax in 1927-28 has been computed as follows:[4]

Salaries of the permanent force:		
Office	$43,815	
Assessor	37,000	
		$80,815
Temporary employees—office		24,000
Expenses:		
General	7,964	
Assessors	13,938	
		21,902
Total direct charges		$126,717
Share of costs of tax collection		88,109
Total direct charges including collection		$214,826
Share of overhead:		
Treasurer's office	10,382	
Accounts	14,332	
Attachments	4,962	
Equalization and review	12,947	
		42,623
Total cost		$257,449

The collections of the year amounted to $7,570,000, making the cost 3.4 cents per dollar collected.

The cost of assessing and collecting the property tax is excessive on account of high office expense. Practically all clerical operations are performed by hand. Bookkeeping machinery and statistical card machinery would greatly reduce the cost of office work.

Assessment Procedure. Property values have been increasing to such an extent that proper revisions of assessments are synonymous with material increases in taxes. As a result, there has been agitation against revision, led particularly by agriculturalists.

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[4] From an analysis of the expenditures of the Department of Finance made by officials of the Department in co-operation with the Survey staff.

The last complete general revision was begun in 1916 and brought into the tax records in 1918. Since that time general revisions have been made in ten of the 77 municipalities, including those in which the largest cities are located. Furthermore, the assessors and the corporation clerk who is responsible for corporation assessments have as their duty a continual revision of assessments. This procedure was originally designed to eliminate the necessity for general revisions. In fact, the corporation clerk does fix the value of each corporation's property annually. Property not held by corporations, both real and personal, is reassessed when it changes hands, when improvements are made or discovered, when an exemption is claimed, when the taxpayer requests a revision, or when the assessor for any reason proposes a revision. During the fiscal year 1927-28, 29,000 new assessment sheets were filed.

An examination of the tax records of one of the municipalities which has not been completely reassessed since 1918 shows that 57 per cent of all properties now taxable have been revised or added since 1918. The value of the revised or added properties is 70 per cent of the total assessed valuation.

It is evident, therefore, that current revisions tend to introduce inequalities in assessments so far as they modify assessed values beyond recording new improvements and personal property. Some of the valuations on the tax records are over ten years out of date and others represent assessments made in any of the intervening years since 1918. During the period land values have increased so that the recent assessments may be expected to be materially heavier than those of 1918.

The true effect of the current revisions may be judged from the changes in assessed values throughout the Island. Between 1918 and 1928 these rose 40 per cent, or from 244 million dollars to 341 million dollars. This increase, however, has been almost wholly in urban values and in rural improvements. Urban assessed values have been raised 87 per cent. Meanwhile, assessed values of rural land have been raised only 11 million dollars, or 11 per cent, and much of this increase has been in the ten municipalities where general revisions have been made. Actually, rural land values have increased materially, but the current revisions have failed to record this fact. Therefore, these revisions have not caused marked inequalities in assessments, except in advancing urban values and perhaps favoring, by comparison, rural land.

Since the treasury staff does not include a chief assessor, this work lacks coordination and direction. The present staff consists of an assessor at large, the several assessors assigned to districts, and the corporation clerk. District assessors have no responsibility for assessments of corporation property.

In making revisions of assessments, the assessor's authority to inspect records is limited. He is expressly authorized to require the production of a manufacturer's or merchant's inventory and nothing else. His powers are limited to requiring the taxpayer to answer questions and he must in addition "proceed upon . . . such . . . other information as he may be able to obtain."

Whenever a revision is made, an assessment sheet is prepared. Corporations are required to file each year sworn assessment sheets with supporting data. The sheets for other taxpayers' properties are prepared by an assessor. After recording his views upon the sheet, the assessor is expected to secure from the taxpayer an agreement as to values and a signed affidavit declaring the assessment to be complete and correct. If the taxpayer and the assessor differ, each sets out his opinion and the taxpayer is then at liberty to appeal to the Board of Review and Equalization.

Assessors are guided in the assessment of land by well established rules of classification and by fairly definite standards as to maximum and minimum values per acre. But the guide or so-called "tariff" of land values prepared for the general revision begun in 1916 is still in use. Only a very few properties on the tax records today are valued at rates above those defined in this schedule prepared 13 years ago, and the almost stationary level of assessed values of rural land is the natural result of its continued use.

Cultivated land is classified by crop, as cane, coffee, tobacco, "minor crops," cocoanut, citrus fruit, or pineapple, or as pasture, timber and brush, or waste land. The schedule of unit values or "tariff" of 1916, still generally observed, relates values of land in crops to production and may be illustrated by quoting the provisions referring to cane land.

Cane Land	Value Per Acre
Irrigated:	
30 tons or more per acre	$300–400
20 to 30 tons per acre	200–250
Not irrigated:	
30 tons or more per acre	200–300
20 to 30 tons per acre	150–200
15 to 20 tons per acre	100
Less than 15 tons	50

Yield is similarly emphasized in the parts of the schedule relating to coffee, tobacco, and citrus fruits. This plan is not very successful in its application to "minor crops," and pasture lands, or to timber, brush, and waste lands, the yield of which can not be measured.

The assessment sheets filled out when a revision is made are designed to suit the scheme of classification and record little or nothing about a piece of land except the crop upon it or other description of its use and the estimated yield of cane or other major crop. These sheets do not even provide space for indicating the character of the roads or trails leading to the farm and its distance from markets.

Although the emphasis placed upon production is particularly important in case of sugar land, owners are not required by law to keep cane production records and to make them available for the assessors.

Assessment records are defective above all in the absence of maps of the properties. Adequate maps of the whole Island are not obtainable, but a remarkable feature of the present situation is the failure to use even those which do exist. In the great area of cane served by the Guayama Irrigation Service, exact and detailed maps are available but are not furnished to the assessor. This lack of maps is undoubtedly one chief cause of the existence of arbitrary inequalities in assessments.

The valuation of urban land is governed by instructions issued for each town of any importance setting values per square meter along each street. Very simple rules are prescribed to allow for reduced value of deep lots and to increase values at corners. The assessors do not consider themselves authorized to depart from these instructions though they are not changed often enough to be uniformly accurate.

Explicit and rather arbitrary rules have been prepared to guide assessors in appraising buildings. These have not been revised recently, but are apparently fair for many types of construction. They are low for fine modern buildings, and very low for typical large modern buildings. It was found, however, that neither the maximums nor the minimums are observed strictly by the assessors.

There are a number of other "tariffs," including one for railroad track and one for sugar mills. None of them has been revised within recent years. That for sugar mills fixes the taxable value according to the average daily production, a device designed to avoid disputes with their owners.

Personal property assessments are revised in the same manner as those of real property. Such items as merchants' stocks and cash may be taxed at the same figure for many years, provided the taxpayer has no special interest in a change.

Relation of Assessed Value to True Value. Figures quoted above indicate that the revisions of rural property assessments during the past ten years have not kept them apace with the presumable advance of true values, since the last general revision, begun in 1916 and completed in 1918. Additional evidence is now presented which shows that present assessments are low and reveals marked inequalities.

CANE LAND ASSESSMENTS IN A HIGH VALUE AREA

Municipality	Number of Acres of Cane on Tax Records	Number of Acres of Land Under Adequate Irrigation [a]	Average Value of Cane Land per Acre, According to Tax Records
Juana Díaz	7,493	9,952	$260
Santa Isabel	6,807	11,779	295
Salinas	6,102	10,336	264
Guayama	7,783	12,161	270
Arroyo	2,643	2,591	251
Five Municipalities Combined	30,828	46,819	$268

[a] Including 32,119 acres irrigated by the Guayama Irrigation Service and 14,700 acres estimated area irrigated by pump.

Land recorded as not in cane in these municipalities is assessed at rates very much lower than the values assigned to cane land. It is a matter of common knowledge that all land in these municipalities which is of a quality justifying irrigation is cane land and is extremely valuable. Little of it could be purchased at $500 an acre and in some instances values run much higher than this figure.

Cane production in 1925 as reported by the Treasurer was 6,405,000 tons,[5] or 27 tons per acre of cane land recorded on the tax books. Such land is often valued roughly in terms of tonnage produced, and $10 an acre for each ton it will yield is a ratio often quoted for the better grades. At the latter rate the cane land of Porto Rico should in total be worth $64,000,000 instead of less than $43,000,000. To the extent that cane land was not under cane cultivation in the year just cited, there remains an additional sum to be added in estimating true value. This basis of appraisal, however, is admitted to be subject to some error and possibly it exaggerates the true value.

The accuracy of cane land assessments may be judged approximately also by comparing its value with that of sugar exports. The following table indicates that in 1918, after the general revision, the assessed value of the land was well above the value of the exports. The same ratio in 1928 would mean a total value of about 60 million dollars.

SUGAR LAND VALUES COMPARED WITH SUGAR EXPORTS

Year	Assessed Value of Cane Land (in millions of dollars)	Value of Sugar Exports (in millions of dollars)	Number of Acres Taxed as Cane Land	Average Value per Acre
1905	11	12	138,000	$78
1910	17	24	179,000	93
1913	23	26	209,000	110
1918	44	41 [a]	256,000	171
1923	41	46	240,000	172
1928	43	55	238.000	180

[a] Assessed values of 1918 were based upon decisions as to price levels of land taken in 1916. Sugar exports, 1915, were $27,279,000 and 1916, $45,809,000.

A few pieces of land were appraised by the Brookings Survey, using qualified appraisers who were instructed to avoid at all hazards the error of overstating values. Appraisals of cane land indicated values in the opinion of the appraisers at from a minimum of zero to a maximum of 100 per cent above those recorded in the tax books. The irrigated area on the south side of the Island was not included in this sampling. The appraisals indicated that underassessment is not confined entirely to the highest valued lands.

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[5] The production figure is from the Treasurer's printed statement of the collection of the four cent per hundredweight sugar tax.

Another class of farm land which seems to be materially undervalued is that planted in bearing fruit trees. Appraisals made of five plots of land in grapefruit indicated that the assessed values were approximately half the market value, figured conservatively.[6]

No other class of farm property was found to be so generally underassessed. Appraisals were made to test the assessments of lands devoted to pasture, "minor crops," coffee and tobacco, and of lands lying idle. These did not furnish evidence of material and general underassessment. On the contrary, they indicated that values on the tax rolls are often close to full market value, and are sometimes even slightly above full value.

The evidence obtainable, therefore, indicates that a general revision of assessments is badly needed to correct inequalities between major classifications of land as well as between individual properties.

Urban land has received more attention in recent revisions than rural land, but the rapid growth of particular quarters of some of the towns and the resulting rise of values within those districts have not been recorded in the assessments. Assessed values in the newer parts of San Juan are decidedly low.

In many towns a large part of the urban land entirely escapes taxation, because it belongs to the municipality. The use of this land is generally given to residents free, or at a very low rental. Although a part of it is allotted for the occupancy of the poor, a portion is used by other classes for both business and homes. The financial statistics of the municipalities for 1927-28 show a total of only $5,000 collected for rental of all municipal lots in the Island. It can be estimated roughly by comparing the assessments of lands and buildings that the total value of these untaxed lots approaches eight million dollars.

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[6] The appraisers assigned values varying from $500 to $650 to grapefruit in full bearing, or $5 for each good bearing tree, plus the value of the land. Less was assigned for young trees. Examination of the records shows that the properties studied were fairly typical. The average value per acre of all orange and grapefruit property is recorded by the Treasurer as $237.

Assessments of corporation owned property as made independently under the immediate direction of the corporation clerk are believed to be generally low. Appraisals of corporation land indicate uniform underassessment. Comparisons of assessed values of public utilities with the values of the same properties recorded in reports to the Public Service Commission show considerable differences between the two. The Board of Review and Equalization finds few corporation assessments which in its opinion require material reduction. An analysis of various figures reported in income tax returns shows the ratio of property taxes to net income of agricultural corporations to be materially lower than the same ratio for farms owned by individuals.

Some classes of personal property largely escape assessment. It is believed that the assessment of farm animals can be indicated fairly by comparing tax and census figures. Although the last census is now some years old, there is little reason to suppose that a comparison of figures for 1920 does not indicate conditions still existing. These figures are given below, in thousands of dollars:

Farm Animals	Assessed Values	Census Values
Horses, mules, and donkeys	1,265	3,064
Cattle	6,456	13,431
Other animals	10	748
Total	7,731	17,243

Making liberal allowances for exempt property, it may be concluded that only about half of the value of taxable farm animals appears on the tax records. In case of cattle, horses, mules, and donkeys, the tax figures show slightly more than half of the census number. The assessed value per head is not much less than the value assigned by the census.

The assessment of tangible urban personal property may be not far below full value at the present time. Values on the tax books, however, are now some years old, particularly in case of San Juan. The smallness of the discrepancy between actual and assessed values may be attributable to a contraction of merchants' stocks following the hurricane of 1928.

Assessments of automobiles and of money must be regarded as a failure. The number of automobiles assessed is 9,562, while the cars reported by the Bureau which licenses them number 15,967. Money, including deposits, is nominally subject to assessment when held by a business, and little or no effort is made to assess it if held by private individuals. The total of money assessed in 1928 was $3,812,000 as against deposits in all banks of Porto Rico, excluding government deposits, of over 30 millions of dollars.

From the data which it was possible to obtain only a rough estimate can be made of the total true value of taxable property. The opinion is sometimes expressed that present assessed values are as low as 50 or 60 per cent of actual values. The information at hand does not confirm these estimates. On the contrary, if money is excluded from the calculations, the present total assessed value of all property is probably about 75 per cent of a conservative fair-market-value basis, which should be used for tax purposes under the present law.[7]

The tax administration has evidently been most at fault in permitting inequalities. It has not raised assessments of certain classes of land and other property to keep pace with their rising value. Cane and fruit land and some urban land are materially underassessed. Slowness to revise values to meet rises in prices has caused the most prosperous branches of business and communities to be favored unfairly in comparison with the less prosperous. Simultaneously, the lack of tax maps and other faults of record and procedure encourage still further inequalities. In fact, a cadastral survey of the Island is urgently needed. It might cost a million dollars or more, although modern airplane photography offers an opportunity to do this work cheaper than formerly. Students of the Engineering Department of the University and members of a Porto Rican regiment might be detailed for part of the work. The assistance of the Coast and Geodetic Survey might also be available. But with or without these possible economies the advantage to the Island from the revenue point alone would make the expenditure a wise one.

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[7] The methods used by the Department of Agriculture and the Census in estimating farm and other values might produce a somewhat higher figure than what is here termed a "conservative fair market value." It is important to note that personal property in Porto Rico makes up a somewhat abnormally low percentage of total wealth due to the character of the population and industry, and that all household effects are exempt from taxation. Therefore, the problem of personal property taxation is unusually simplified. A high ratio of assessed to true value of all property should be possible to maintain.

Increases in Tax Rates. It has been noted that the nominal rates of property tax in the several municipalities vary between a minimum of 1.65 per cent and a legal maximum of 2.65 per cent. In the year 1927-28 the average was 2.20 per cent; that of San Juan, which was the highest, was 2.64 per cent, and that of Ceiba, a small rural municipality, 2.50 per cent. About half of the municipalities, or 37 in all, had rates ranging between 2.05 per cent and 2.24 per cent, while 20 municipalities had rates above and 20 had rates below these figures.

Tax rates were not changed radically between 1901, when the law was voted, and 1920; but they have been increased materially during the present decade. The history of the total tax rate is summarized in the following table:

TOTAL PROPERTY TAX RATES

Year	Rates in the Four Largest Municipalities				Typical High and Low Rates in All Other Municipalities	
	San Juan	Ponce	Mayagüez	Arecibo	High	Low
1929	2.64	2.35	2.25	2.23	2.50	1.65
1923	2.00	1.75	1.50	1.55	1.90	1.25
1918	1.45	1.20	1.20	1.20	1.40	1.20
1913	1.30	1.30	1.40	1.30	1.20	1.20
1908	1.60	1.40	1.55	1.40	1.20	1.10
1903	1.70	1.25	1.55	1.525	1.10	1.00

A most significant fact is that the recent increases began in and after 1921, just when income of taxpayers was reduced sharply by a general business depression.

Tax Rates in Relation to True Values. If assessed values of taxable property were on an average 75 per cent of true values, conservatively estimated, the tax collected amounted to approximately 1.65 per cent of the true value, or 75 per cent of the average nominal rate.

Applying the varying nominal tax rates to estimated true values of individual classes of property, a very wide range of percentages is obtained. Money almost escapes assessment; the total tax recently collected has not amounted to one-third of 1 per cent of all private deposits. Automobiles may have paid less than half the nominal rate. Personal property on farms has paid on an average about half the average rate applicable to rural areas, or about 1 per cent. In municipalities with a low tax rate, personal property on farms and also large areas of cane land have been taxed less than 1 per cent of true value. Some land in fruit trees also has paid about 1 per cent.

At the other extreme, some taxable property in San Juan is assessed at nearly its full market value and the tax rate is 2.64 per cent. Some farm land and idle land in rural areas is assessed at full value, and tax rates upon it vary from 1.65 to 2.50 per cent.

The combination of variations in legal tax rates and of variations in assessments, therefore, causes extreme differences in taxation as measured by actual collections in relation to true values of the property taxed.

Property Taxes as a Percentage of Property Income. Taxable wealth includes both income producing and non-income producing property. Farms and business property are typical of the former. The only large class of non-income producing property consists of houses and urban lots used by the owners, and even for these a rental value may be assumed. It is possible, therefore, to compare property taxes with income, real or assumed, in case of all important classes of taxable wealth.

Six per cent, after paying taxes, is commonly considered a very moderate income from farm land purchased at present prices. Many rural estates yield more, even if purchased recently, but the popular desire to own land seems to hold the average level of prices high enough to keep the average return a little above 6 per cent. Obviously many companies and individuals do not make it a policy to buy land when it is held at prices which yield only 6 per cent. If this figure is accepted as typical and a 2 per cent nominal rate, or 1.5 per cent real rate of taxation is assumed, rent including taxes should be 7.5 per cent, and the ratio of taxes to rent is 20 per cent.

Income tax returns from a large number of business enterprises engaged in agriculture indicate that they paid property taxes to the amount of about 20 per cent of their net incomes before paying the latter levy. There are great variations in book profits and taxes of individual estates, and probably the tax ratio is higher than 20 per cent in case of typical small farms.[8]

Variations in assessments and tax rates cause great variations in the ratio of taxes to income even where the latter is normal and constant relatively to land values. If a number of rentals are fixed at 7.5 per cent of true value and assessments or tax rates vary so that taxes as a percentage of true value vary from 1 per cent to 2½ per cent, the variation in ratio of taxes to rent is from 13 1/3 per cent to 33 1/3 per cent. This is a variation which present assessments and tax rates in Porto Rico actually produce.

Income tax returns from several branches of business engaged in other fields than agriculture show average property taxes for different business groups ranging from 11 to 33 per cent of their net income before paying taxes. Variations in case of individual business enterprises are much greater, due principally to variations in profits.

Taxes expressed as a percentage of rents of properties in the two principal cities of Porto Rico were found to be very high. Apparently the rents of a considerable amount of city property are abnormally low. On the other hand, the properties studied showed great variations in the ratio of net rent to value and in the ratio of taxes to net rent, and it would be unsafe to attempt to estimate the average of either ratio on the basis of a study of a limited number of estates. In Porto Rico and elsewhere there is always a large amount of urban property which is not improved in a manner to obtain the maximum possible rental and, as a result, taxes which amount to a low percentage in improved newer sections are a heavy burden upon many owners in older sections. Failure to revise land values frequently aggravates these inequalities.

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[8] Compare *Memorial de los Trabajos de la Comisión de Hogares Seguros*, 1915-24, p. 53.

In interpreting the figures showing the ratio of property taxes to income we should recognize that some taxpayers are benefited by what is known as "capitalization" of the tax and consequently are in a position to carry a very heavy burden. The capitalization theory holds that the taxpayer normally calculates profit from property after allowing for the tax and does not hold property unless clear profit above taxes equal to the current rate of income from owning real assets is obtainable. This reasoning must be accepted as explaining why the heavy burden of property taxation and the wide normal variations in the ratio of tax to income are tolerated. But it is absurd to assume that hardships from property taxation are removed as a result of the property owners' calculations or capitalization, for these hardships arise from general conditions to which the theory does not apply.

For example, they reach a maximum when the taxpayer's income is reduced or cut off by business depression or disaster. At such times the large amount of the tax in relation to income makes it a far heavier burden than can reasonably be exacted. Natural disasters have been fairly frequent in Porto Rico.

A hardship is also imposed by a new tax. The taxpayer's income is reduced by a new tax and the price which his property will sell for is reduced. In Porto Rico, as in the United States, during the past ten years the income of many property owners has been contracted unless they have increased it by special measures enough to compensate for additional new taxes.

Porto Rico's property tax burdens the relatively poor farmer more than the rich, or, in other words, favors the rich farmer instead of following the principle of progressive taxation by making the rich pay more. The small farmer who owns his own land is rarely as able to bear an increase in taxes as is a more wealthy landowner. He is less likely to have reserve income which he can contract without hardship. The small farmer earns less upon his investment than the large, and his property taxes are a higher percentage of his income. He suffers more than the rich from periods of depression and disaster, because he has less reserve capital to carry fixed charges including taxes. Some small farmers may have difficulty in paying a property tax because their income is in kind rather than in cash.

What applies to farmers may apply also to other business than agriculture, though enterprises which are strongly financed may pay more taxes per dollar of net profit because they employ a more expensive plant. Probably in many lines of business the property tax is crudely progressive for that reason.

A property tax on either agriculture or business causes hardship when there are arbitrary differences in assessments and rates. These are rarely escaped by capitalization. They imply an instability in the tax burden which affects business adversely. Establishments paying higher rates are forced to compete with those paying lower rates.

Property Taxes Upon Houses. The preceding comments apply to cases where the incidence of the property tax is upon a taxpaying business or upon land, and what has been said as to inequalities of this tax necessarily applies even to lines of business which are in a position to shift the tax by increasing prices. The tax on houses involves a different principle.

Normally, the incidence of the tax on houses falls upon the person who occupies the house, or, in other words, upon a person who does not receive any direct income from the property. Therefore, it is a form of consumption tax upon a necessity.

The amount of the tax upon houses may be expressed as a percentage of the average income of persons who occupy the houses. Assuming that house rent in Porto Rico amounts to 15 per cent of the income, and that the tax is 20 per cent of the rent, the tax amounts to 3 per cent of the income. This may be regarded as a normal tax for a part of the population.

Among the poor the ratio of the house tax to income is often very low because the houses are under-assessed. Houses owned by the poor occupant stand generally on municipal land or on land owned by a proprietor and may be assessed at less than $100 and exempted from all taxation. If not exempted, the tax may be less than 1 per cent of the family income and rarely, if ever, exceeds 2 per cent of a normal family income. Peons' huts in the rural areas, which are owned by the proprietors of large estates, are often valued at merely nominal sums, from $10 to $25. Some of the poor in towns, however, pay rent for tenements in which the taxes indirectly collected from them may amount to 3 per cent of their income, if not more.

Proposed Exemptions to Assist the Poor. Through the Homestead Commission attempts have been made to provide better workmen's houses and to place workers on small plots of public land. The houses and plots are offered at low rental and free from any taxes. In line with the same recognition of the public interest in encouraging better houses and small holdings, proposals have been made to extend the present minimum exemption so as to relieve from taxation certain properties assessed above the existing $100 limit. Obviously, proper houses cost more than $100 and a plot of land worth $100 can not support a family. The Department of Finance has recently prepared figures showing that raising the exemption of rural holdings employed in agriculture or industry to $500 would benefit 31,000 taxpayers and would reduce the property tax revenue by $152,500, and that increasing the exemption of residential property to $300 would affect 15,000 taxpayers and would reduce tax revenue by only $65,000.

It has been urged against raising present exemptions that the revenue collected in the urban areas is already inadequate and that urban municipal services are therefore paid for in part by taxes upon the rural areas. Consequently, further exemptions of city property would only add to the revenue which the urban areas draw from rural districts. To increase exemptions of either agricultural or urban properties would result in a loss of income which some municipalities could not well afford. In order to meet these objections, small properties might be exempted from Insular levies and from municipal levies for improvements but not from the basic municipal and local school levies.

So far as has been learned, no proposal has yet been considered for the exemption of small houses which are owned by landlords. Exemption of houses renting at an extremely low sum, or of low value and furnished free, is justified on the same ground as the exemption of other small houses.

The share of the property tax falling upon the poor includes also the normal tax expense of business establishments which sell to the poor. That expense includes both the tax on their buildings and fixtures and the tax on their stock in trade. Establishments directly or indirectly selling most largely to the poor are those of retail and wholesale grocers. Taxation of merchants' stocks of food may properly be objected to as a tax affecting the poor, which could easily be avoided by exempting provisions held for local consumption. This is a proposal which apparently has not been advocated as yet.

Tax Collections. Individuals pay their taxes at the offices of collectors of internal revenue in 48 principal towns of the Island, while corporations pay them directly to the Insular Treasurer. They are payable in two installments, due before March 1 and September 1 of each year.

On March 31, 1929, general property tax arrears amounted to $3,794,000.[9] This sum is approximately a half of one year's collections, or equal to the whole amount of the half yearly installment of taxes due not later than March 1, 1929. In this total $388,000 represents taxes for which extension of time for payment had been granted. The figure for 1929, however, is abnormal, due to the effects of the recent hurricane. On June 30, 1928, the arrears amounted to $1,615,000, or to one-fifth of one year's collections. These arrears have been steadily increasing since 1920 when, according to the Treasurer's report, they were less than $100,000.

The accumulation of arrears is the result principally of the increasing dilatoriness of many taxpayers in paying taxes of the current year. The blame may be placed upon the first legislature which met after the passage of the present Organic Act in 1917, which reduced the penalty for delay in payment of taxes from 1 per cent to one-half of 1 per cent a month (Act No. 1, p. 200, Laws of 1917; First Session of the 9th Assembly). Apparently, the result of the low penalty has manifested itself with increasing force as years passed. Under the present penalty many taxpayers find it profitable to delay paying their taxes as long as possible.

The procedure for collection provides for prompt distraint of the personal property of defaulting taxpayers, but those who are habitually in arrears do not as a rule own taxable personal property. Distraint of real property follows a few months later, but this cannot be sold promptly in any case, and the taxpayer may redeem it at any time within one year of sale. During the redemption period, moreover, the taxpayer retains possession.

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[9] From a table prepared by the office in charge of attachments, Department of Finance.

Although the principal cause of delinquency has not been grants of extension to individual taxpayers, it must be noted that the Department of Finance has at times been very liberal in allowing such extensions. After the recent hurricane taxpayers were permitted to postpone tax payments for considerable periods and, as a result, a number of municipal governments in the devastated area fell into financial difficulties. There have been instances of large sums owed by taxpayers for several years. The policy of the Department is stated to be to grant extensions to taxpayers who can prove that they are temporarily embarrassed and who are believed to be capable of paying later. This policy, of course, is not defined in any regulation.

Criticism of the Property Tax. A study of the Porto Rican tax shows the existence of the same kinds of defects that have been described by investigators of American state tax systems.

What has already been said of the complicated and confused legal provisions defining taxable value, indicates the need for redrafting and simplifying the existing law. The experience of the Department of Finance with the provisions regarding the taxation of corporate surplus suggests that the difficult problems involved in the valuation of capital stock should be avoided. So far no success has been attained in taxing corporate surplus and such attempts as have been made have necessarily been confined to a few corporations, and if successful they would have unfairly discriminated against those companies.

The difficulties the Department meets in combating the arguments of public utilities companies and other taxpayers who claim tax reductions because of low profits, suggests the practical necessity of amending the present law so as to establish rules of valuation disallowing surpluses and deficits as factors affecting taxable value, and requiring cost, modified by appreciation and physical depreciation, to be accepted as a true measure of that item when there is no practical way to determine the fair market value.

Similarly, the failure of the Department to assess the tax upon automobiles, money, and foreign stocks and bonds, indicates a need for some change in the law. In case of automobiles, there is no reason for imposing a property tax in addition to a license fee. The latter can be fixed at any reasonable amount and on any basis or combination of bases. The failure of the Department to collect the tax upon money and upon stocks and bonds of foreign corporations suggests the desirability of repealing those taxes or of making them exceptionally low. Under the full rate, the tax is evidently confiscatory and could never be collected equitably.

These comments assume that the desirability of the existing general exemption of intangibles is not questioned. The present law does not draw a consistent line between intangibles representing property in Porto Rico and those representing property elsewhere. If the line is to be drawn between intangibles which it is practicable to assess and those that cannot be fairly assessed, the exemption of all stocks and bonds and credits may be recommended. If the purpose is to prevent double taxation, practically all should be exempted. As a substitute for the exemption of all, a low rate tax might be adopted, following the practice of many American states, but the success of low rate taxation of intangibles has not been sufficient to encourage such a proposal.

Special taxes which rest exclusively on banks represent on their face a discrimination which requires special justification. Net bank profits may be high, but since special taxes levied uniformly on only one class of business are generally shifted, and are very easily shifted in this particular instance, the public, which is interested in money rates, would hardly advocate consciously what is in effect discriminatory taxation upon borrowers. Therefore, the repeal of the present special tax upon bank capital is certainly to be recommended as a measure tending to lower money rates.

While Porto Rico in comparison with American states enjoys a unique advantage in the centralization of property tax administration, the procedure is far from perfect and the supervision of assessments is weak. The salary of the Chief of the Bureau of Property Taxes, which is only $3,300, is too low. The essential post of chief assessor does not exist.

Although the attention of the Department of Finance has recently been focussed to some extent upon urban assessments, the revision of property tax assessments as a whole has been neglected. During the past ten years ample opportunity has been given to test the system of continuous assessment revision as contrasted with general revisions. This experience forces us to conclude that frequent general revisions are essential. General revisions of a few municipalities each year might be a success, but, unless the whole Island is covered promptly, they have the disadvantage of retarding the adoption of new unit values for rural land or other property.

Assessment procedure has been slow in bringing up to date the values of special classes of property. The schedules of values used to guide assessors have been allowed to become obsolete. Changes in urban land values are ignored in deference to out-of-date standards. The law is defective in not requiring taxpayers to submit annual returns of classes of personal property which vary greatly in quantity from year to year.

Probably the most serious fault of the whole system is the lack of tax maps. A cadastral survey of the Island is the chief single measure looking to tax reform which can be proposed. Other records and data are likewise inadequate. Under the present law powers are not granted to the assessor to examine taxpayers' records. Conversely, the emphasis placed upon the affidavit of the taxpayer may be criticized. In some cases the aid of sworn statements filed by the taxpayer is desirable, as when annual returns of personal or other property are called for, but the present requirement of an affidavit on all assessment sheets introduces the idea of assessment by declaration where personal inspection and appraisal is what is wanted.

Advantages similar to those at present realized by requiring annual corporation returns might be gained by requiring annual returns from certain other taxpayers. In fact, the law should grant the Treasury Department power to require annual returns from any taxpayer and for any class of property. As actually administered the system may be criticized, however, on the ground that where annual property returns are exacted the inspection and appraisal of corporation property which should supplement them are neglected.

The great number of poor people in Porto Rico makes their treatment in respect to property taxes a matter of more than usual moment. The tax law, like the same law elsewhere, imposes a heavier relative burden upon the poor than upon the wealthy. The logical remedy is to allow the former liberal exemptions. In Porto Rico the law now exempts from taxation the property of persons whose total assessable estate is valued at less than $100, but many very poor people hold title to houses and other property worth more than $100, and are therefore taxable. A higher exemption from Insular and special municipal levies, but not from the basic municipal levy of one per cent is desirable.

The present law is also open to criticism because of its effect upon rents paid by the poor who do not own their own homes and on account of its tendency to increase food prices. Tenements commanding low rentals and stocks of food held by merchants for local sale are proper subjects for exemption. Taxes on houses and foods are taxes on necessities which warrant radically different treatment from that suitable for other property.

The policy of granting extensions of time for the payment of taxes and the law governing penalties for delay in tax payments must be considered from both the Treasury's and the taxpayers' points of view. The Treasury cannot rebate the tax whenever it is shown to cause special hardship, but on the other hand the procedure should be designed to reduce hardships to a minimum.

One weakness of the present procedure is that the rules for granting extensions are not defined by law or regulation. In fact, the number of people who are in financial difficulties is usually so great that a uniform policy of granting extensions would probably present serious administrative difficulties.

If Porto Rico were to revise its scale of money penalties for delay in payment of taxes and to extend the time when action is taken to sell property for taxes, the problem of extensions would probably solve itself. It should not be difficult to fix a monthly rate of interest which would assure the prompt payment of taxes under normal conditions and yet allow the taxpayer the privilege of a delay in cases of necessity. Before 1917 a penalty of 1 per cent a month apparently accomplished this result.

The property tax in Porto Rico is unnecessarily burdensome because of variations in rates. These are exceptionally great because both assessed values relatively to true values and the nominal legal tax rates of the several municipalities vary widely. It should not be difficult to amend the tax laws so as to remedy this evil.

The rapid increase of taxes during the recent years has encountered great criticism, and so far as the taxpayer's objection has been to the addition of new burdens during a period of serious business depression, it seems to have been justified.

At present the law exempts private property devoted to nonprofit-making public welfare uses, excluding land over five acres attached to exempted institutions; but the statute is not clear as to exempting property not actually owned by the institution.

The provision allowing the Public Service Commission to grant temporary exemptions to new industries has probably done little to promote industrial development, but on the other hand it has involved little loss in revenue. Exemptions allowed to railroads, including what seems to be a permanent exemption for the largest system, are not in line with good public policy. The law exempting the largest system provides: "This exemption shall end when the Public Service Commission declares, after making an investigation of the *Compañia de los Ferrocarriles de Puerto Rico,* that the capital of the said railroad company, actually invested in the business, shows a liquid profit of at least eight (8) per cent per annum."[10] It was assumed when the exemption was granted that it would benefit the early stockholders of the company, whose original investment had been lost, but the railroad pays nothing to the old owners. The cane growers, owners of cane land, and the sugar interests, who control the railroad, receive the benefit; for the exemption does affect freight rates.

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[10] Joint Resolution No. 1; Laws of 1927.

The exemption of newly planted coffee land and forest is excellent except that it does not go far enough. The agricultural interests of the whole Island are vitally interested in forest protection. It has been proposed to extend these exemptions to a longer period than the five years now allowed so that the growing of trees other than coffee may be encouraged. In order not to reduce the now meager municipal revenue in mountain areas, the more liberal exemptions might apply only to Insular and special municipal taxes and not to the basic municipal levy of 1 per cent.

General Conclusions. Most of the faults of the property tax are due to the law or are in part preventable by legislation. The enactment of an entirely new property tax law is desirable. This revision should begin with the provisions relating to taxable value and exemptions and end with administration, assessment, and penalties.

The most important consideration to be kept in view in drafting a new law is to make it workable. Definitions of taxable value and administrative procedure are, therefore, the features of the new legislation to be worked out with the greatest care. In addition, the new law should not neglect the opportunity to perfect exemptions.

The importance of revising assessments is evidently not fully realized even by those who are injured by the existing inequalities, for if it were the present legislative indifference on this subject would disappear. Funds for mapping the Island should be easily found, and if current revenue cannot meet the cost, borrowing is fully justified in view of the economies and other practical benefits that the Treasury and the people of the Island would derive from such a measure.

Assessments should be revised immediately under a law providing that the total taxes collected shall remain unchanged although tax rates are reduced. If a revision were to mean an increase of taxes by perhaps two million dollars, the influences working against the project will be fairly sure to prevent its realization. A change to a tax basis in which the rate is set currently to secure a predetermined amount should encounter no such difficulties.

If opposition to revision were removed the Department of Finance would probably be able to improve its procedure in ways now effectively blocked. To reorganize successfully the procedure of a public office having functions as extensive and complex as the property tax administration, however, is hardly practicable without the aid of temporary advisers. An expert in tax procedure should be called in to assist the Treasurer and expert consulting appraisers should be engaged to assist in equalizing special classes of property values.

In the preceding discussion the classification of property for the purpose of applying varying tax rates has not been separately discussed. Any revision, however, should provide for special rates upon any bonds, stocks, and credits taxable under the new law. A scientific reform of the present exemptions would require also a new classification of property subject only to local taxes. Arguments might be advanced for other exemptions and low rates in addition to those already recommended and many relatively unimportant but nevertheless desirable refinements in the tax system would doubtless suggest themselves to a body of expert advisers.

II. THE INCOME TAX

The modern net income tax is a form of taxation which has two obvious advantages, first, the principle of progression, the tax increasing as ability to pay increases, and second, the complete exemption of the individual or business that fails to earn any net income. Owing to these advantages, this tax impedes business expansion less than any other form of fiscal burden. As a tax upon local trade, it has the further virtue of being relatively difficult to shift to the consumer.

Since 1913 when the Federal government enacted a law taxing net incomes, a similar tax has been collected also in Porto Rico. The Federal and the Porto Rican statutes have been at all times similar, if not identical. Both have been amended at frequent intervals.

Both levy a corporation income tax and an individual income tax, the former a fixed percentage of net income except as affected by exemptions, and the latter a progressive "normal" tax upon low incomes and a flat "normal" tax, plus a progressive "surtax" upon high incomes.

Until recently the only conspicuous difference between the Federal and Porto Rican laws has been in the taxing of partnership income. In the United States the income of a partnership is taxed as a part of the income of each partner, while in Porto Rico it is taxed under the same schedules as those applied to corporations and the partners pay surtax but no normal tax upon the distributions of profits just as a corporation stockholder in both countries pays surtax but no normal tax upon dividends.

Other features of the Porto Rican law different from those of the present Federal law are accounted for mainly by amendments to the Federal act, notably, the recent reduction in rates. A dozen or more principal variations in the provisions of these laws are summarized in the following table, making the comparison with the Federal act as it was when this survey was made.

PORTO RICAN AND FEDERAL LAWS COMPARED

Kind of Tax	Porto Rican Law	Federal Law (1928)
TAXATION OF INDIVIDUAL INCOME		
Normal Tax:		
Exemptions—Single individual.	$1,000	$1,500
Married couple..	2,500	3,500
Per dependent...	400	400
Nonresidents	None	1,500
Rates—Residents:		
First $4,000............	2 per cent	1½ per cent above exemptions
Second $4,000..........	4 " "	3 " " " "
Above $8,000..........	6 " "	5 " " " "
Nonresidents	6 " "	5 " " " "
Surtax:		
On net income above $10,000, at varying rates beginning with 1 per cent of the first $4,000 up to......................	25 " "	20 per cent above $100,000
Deduction for earned income ¼ of the tax on incomes up to a maximum of...........	$10,000	$30,000
TAXATION OF CORPORATION INCOME		
Exemption of $3,000 only if net income is under (otherwise no exemption)...................	$10,000	$25,000
Rate	12½ per cent	12 per cent
TAXATION OF PARTNERSHIP INCOME	The same as the corporation tax	Taxed to partners as individual income
Distribution of partnership profits	Subject to surtax	No tax
Period of limitation upon tax assessment (that is, time allowed the government to revise a return and assess an additional tax)..............	5 years	2 years

Federal rates applicable to 1929 are still lower, but the reduction for that year cannot be assumed to imply a permanently reduced scale.

These differences are small in comparison with the difference between the countries in the ratio of the taxable income to the total income. Porto Rico, being a poor country, has a relatively low total taxable income. The income shown in tax returns and the estimated total income are compared below (in millions of dollars):

	Porto Rico 1927 Income	United States 1926 Income
Income in corporation returns	11	9,673
Income in individual and partnership returns	14[11]	21,959[11]
Total income in income tax returns	25	31,632
Estimated national income	160	85,700
Percentage of national income that is shown in tax returns	16	37

The radical differences between the Island and the mainland as regards taxable income may be seen further from the following:

	Porto Rico	United States[12] (1927)
Average per capita national income	$111	$738
Percentage of population making individual income tax returns	0.3	3.5
Percentage of all tax revenues derived from the income taxes (Insular and Federal)	12	26
The income tax as a percentage of estimated national income	1.36	2.5

Porto Rico's tax apparently falls upon a part of the population which is only a tenth as great relatively as that paying the tax in the continental United States, but this smaller group pays more than half as much in relation to total national income as does the larger group in the states.

In 1927-28 the Island's income tax collections amounted to

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[11] Both figures include dividends, which means that the total income in income tax returns is a little more than 10 per cent greater than it would be if this duplication were eliminated.

Figures for the United States are from the Treasury Department, *Statistics of Income from the Returns of Net Income for 1926*, pp. 3 and 11, and from the National Bureau of Economic Research, *Recent Economic Changes*, p. 763, Chapter XII, by Morris A. Copeland.

[12] Income estimate for the United States is by the National Bureau of Economic Research; tax figures for the United States are by the National Industrial Conference Board.

$2,178,000, of which the corporation, partnership, and individual taxpayers paid respectively, $1,353,000, $297,000, and $527,000. Owing to the fact that the collections of 1927-28 happened to include large sums of tax assessed upon income of earlier years, it is of interest to show also the tax assessed upon income of the calendar year 1927, which was as follows:

Corporation tax	$1,392,000
Partnership tax	248,000
Individual tax	348,000 [13]
Total	$1,988,000 [13]

This total may be increased by 15 or 20 per cent as the returns are audited.

The Corporation Income Tax. The income tax of 1927 was assessed against 175 of the 370 corporations which submitted income tax returns. The corporation exemption in 1927 was $5,000, and 55 returns reported net income within this exemption, while 140 declared losses. An analysis of the returns yields the following information as to the corporation net income and tax derived from various kinds of business:

CORPORATION NET INCOME AND INCOME TAX, BY KIND OF BUSINESS
(In thousands of dollars)

Kind of Business	Number of Returns	Net Income or Loss		Income Tax	
		Net Income	Net Loss	Amount	*Percentage of Total*
Trade	81	912	446	99	*7.1*
Manufacture:					
Sugar	33	5,608	54	685	*49.2*
Other	24	250	29	25	*1.8*
Agriculture	60	1,561	57	185	*13.3*
Banking	16	1,358	15	138	*9.9*
Other	138	2,245	686	260	*18.7*
Total	352 [a]	11,934	1,287	1,392	*100.0*

[a] A few of the delayed returns were not analyzed. The omitted income is unimportant.

Approximately half of the corporation income tax, therefore, is paid by companies engaged in manufacturing sugar. The number of these showing net income was only 24.

The rate of taxation of the income of corporations under the present law is as follows:

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[13] From an analysis of income tax returns as of March, 1929. The total for the individual tax omits 10 or 20 thousand dollars of tax upon small incomes.

If the total income is less than $3,000, there is no tax.

If the income is within the limits $3,000 to $10,000, the tax rate varies from zero to 8¾ per cent, that being the equivalent of a 12½ per cent tax upon the amount over $3,000.

If the income is over $10,000, the rate is 12½ per cent.

Business enterprises capitalized at under a hundred thousand dollars and those with a considerably higher capital, if the earnings are moderate or low, therefore, receive a material advantage from the $3,000 exemption, while practically all large corporations pay a flat 12½ per cent tax when they earn net income.

From the stockholder's viewpoint, however, the surtax which he pays upon dividends is to be considered in connection with the corporation income tax and it is, therefore, necessary to mention at this point surtax rates or the combined effect of the corporation tax and the surtax. Corporation income may be distributed in dividends or accumulated to add to capital, and it is not common for all income to be distributed. If no distribution of profits is made, the tax of 12½ per cent is the whole tax. If all of the profits are distributed, the taxpayer may figure his contribution as 12½ per cent, plus the full surtax rate for his income:

If the taxpayer's total income is $10,000 or less, there is no surtax.

If the total income is between $10,000 and $20,000, the surtax varies from zero to 1.1 per cent of the entire income.

If the total income is between $20,000 and $50,000, the surtax rate is from 1.1 per cent to 5.9 per cent.

If the total income is between $50,000 and $100,000, the surtax rates are 5.9 per cent to 13.7 per cent.

In actual practice the distribution of dividends of Porto Rican corporations does not result in material surtax payments except by a very small group of taxpayers. The total surtax assessed upon the incomes of 1927[14] was only $178,000.

The high rate of a corporation income tax is usually justified as a necessary expedient to reach incomes of the wealthy which are not distributed. So long as the income is not distributed, a progressive scale varying with the total income of the taxpayer is impracticable. The high tax is also justified by the superiority of the corporation as a form of business organization, or more precisely by the superiority of the large corporation. The high rate does no injury to the poorer classes and is probably less harmful to business than a high property tax rate.

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[14] Up to March, 1929.

The Porto Rican rate, substantially equal to the Federal rate, may be regarded as moderate. Some of the American states levy corporation income taxes in addition to the Federal tax, and Porto Rico would be quite as justified in increasing its rate above the Federal schedule as is any other political division of the country. The desirability of an increase, however, is qualified by certain considerations as to the tax administration which will be discussed in later paragraphs. It may be affected also by the decision taken as to the taxation of dividends, which is another question dealt with below.

The Partnership Income Tax. Five hundred and eighty partnerships submitted income tax returns for the year 1927, and of these only 215 showed taxable income. Forty-seven per cent of the corporations showed taxable income as compared with only 37 per cent of the partnerships. The returns of over half of the partnerships showed net income of less than $5,000. The average tax levied upon taxable corporations in 1927 was $7,950, while the average levied upon taxable partnerships was only $1,150.

Partnership net income, and income tax by kind of business were as follows:

PARTNERSHIP NET INCOME, AND INCOME TAX, BY KIND OF BUSINESS, 1927

Kind of Business	Number of Returns	Net Income or Loss (In thousands of dollars)		Income Tax	
		Net Income	Net Loss	Amount (In thousands of dollars)	*Percentage of Total*
Trade	377	1,896	283	82	*33.1*
Manufacture					
Sugar	3	526	...	64	*25.8*
Other	31	218	10	13	*5.2*
Agriculture	69	536	48	34	*13.7*
Other	60	476	32	55	*22.2*
Total	540[a]	3,652	373	248	*100.0*

[a] Excluding a few delayed returns.

The rate of taxation of partnership income is the same as that of corporation income, as explained above. From the figures quoted as to the earnings of partnerships, it is evident that many partnerships benefit from the exemption and thus enjoy a rate below 12½ per cent, since they pay anywhere from zero to 8¾ per cent upon their incomes between $3,000 and $10,000. The surtax adds to the burden upon the distribution of profits of wealthy owners and prosperous partnerships, but does not affect many.

Nevertheless, it may be objected to the present plan of taxing partnership income that it is unfair to many small partnerships and could be replaced by taxing the partners as individuals as is done under the Federal law. The present system is particularly burdensome in case of partnerships with several members who have little or no income except from the partnership and who have dependents. If there are several partners, the $3,000 exemption is likely to be of no benefit, since a very moderate profit for each member may in the aggregate amount to more than $10,000. If the members have no income except from the partnership, they are likely to be taxed 12½ per cent upon their entire income without any exemption for dependents. There is no sufficient reason why the taxation of individuals should provide for large exemptions and low rates while the taxation of partners should deny exemptions and impose a heavy rate.

The partnership tax is supposed to be justified by analogy with the corporation tax, but it is often a much heavier burden than the latter. One reason for this difference is the fact that the management of a corporation is paid by salary, while the management of a partnership may be paid by profits only. An amendment to the Porto Rican law in 1927 provides that deductions from income shall include reasonable salaries paid *to employees*, implying that salaries paid to partners will not to be allowed as a deduction. The scale of the corporation tax is fixed on the assumption that it is to be paid by investors who are generally wealthy and who own shares in large and powerful business institutions. There is no practical way to substitute a progressive scale and exemptions to benefit the smaller stockholders. In the case of the partnership, a progressive scale and exemptions are practicable, and they may be needed much oftener than they are for smaller stockholders.

To illustrate the difference, a comparison is made below of the rates paid by a partnership with three members, all three married and having each two dependent children so that their personal exemptions amount to $3,300 each, or $9,900 for the three. It is assumed that none of the three has any income except an equal share in the partnership profits. The tax is figured as provided by the present law and again as individual income tax.

IF THE NET INCOME AMOUNTS TO $10,000:

Partnership Tax
$10,000 — $3,000 = $7,000
$7,000 × 12½% = $875.00 Tax

Individual Tax
$10,000 ÷ 3 = $3,333
$3,333 — $3,300 = $33.33
$33.33 × 2% = $0.67
$0.67 × 3 = $2.01 Tax

Difference
Partnership tax greater by $872.99

IF THE NET INCOME IS $20,000:

Partnership Tax
$20,000 × 12½% = $2,500 Tax

Individual Tax
$20,000 ÷ 3 = $6,666.67
$6,666.67 — $3,300 = $3,366.67
$3,366.67 × 2% = $67.34
$67.34 × 3 = $202.02 Tax

Difference
Partnership tax greater by $2,297.98

IF NET INCOME IS $100,000:

Partnership Tax
$100,000 × 12½% = $12,500

Individual Tax
$100,000 ÷ 3 = $33,333.33
$33,333.33 — $3,300 = $30,033.33
$4,000 × 2% = $80.00
$4,000 × 4% = $160.00
$22,033.33 × 6% = $1,322.00
$1,562.00
$1,562 × 3 = $4,686.00 Normal Tax
$920 + ($33.33 × 10%) = $923.33
$923.33 × 3 = $2,770.02 Surtax

Difference
Assuming all of the partnership profit to be distributed, the surtax applies in both cases:
Partnership tax is greater by $7,814.
Even if there is no distribution of profits, the partnership tax is greater by $5,043.98.

The Individual Income Tax. Four thousand and thirty individuals filed returns for the fiscal year 1927, but of these 1,894 showed exemptions greater than their net taxable income, leaving 2,136 with income above exemptions and therefore subject to tax. Assessments up to March, 1929, included $178,000 of surtax. The exactly corresponding figure of normal tax was not ascertained, but can be estimated closely as an amount somewhat larger than the total surtax.

The distribution of the tax by income classes and the percentage which the tax paid by each class was of the corresponding income is shown by the following table:

INDIVIDUAL NET INCOME AND INCOME TAX, BY INCOME CLASSES, 1927

Income Class	Number in Each Class	Net Income as Computed for Tax Purposes Minus Income Tax (thousands of dollars)	Income Tax	
			Amount (thousands of dollars)	*Percentage of Income*
Under $5,000 [a]	698 [a]	1,981 [a]	7 [a]	*.4*
$5,000 to $10,000	599	4,141	41	*1.0*
$10,000 to $20,000	169	2,390	48	*2.0*
$20,000 to $30,000	39	1,024	55	*5.4*
$30,000 to $40,000	9	292	25	*8.7*
$40,000 to $50,000	4	166	15	*9.0*
$50,000 to $70,000	9	453	51	*11.3*
$70,000 and over	5	455	106	*23.3*

[a] Excluding individuals whose gross income was less than $5,000.

This table shows clearly the true rate of taxation as determined by the varying provisions as to exemptions and progressive normal and surtax scales. On an average the contribution of persons receiving incomes of less than $10,000 is almost negligible. It must be concluded in fact that until incomes of over $20,000 are reached the present law is of little effect as a means of obtaining progression in taxation—that is, greater taxation upon those whose capacity to pay is greater. The individual tax is a material burden to only a few dozen individuals.

Considering these facts without regard to the administrative problems involved in assessing the tax, radical proposals for revisions of rates might properly be suggested.

The Taxation of Incomes of Absentees. Absentees are numerous among the Porto Rican taxpayers who are wealthy enough to pay the individual tax in the higher brackets and who also pay high rates as owners of corporation stock. It has been estimated that the investments of absentee capitalists in the Island amount to over $176,000,000, or perhaps a fifth of its total tangible taxable wealth. It has been estimated also that in 1928 the income of absentees was nearly ten million dollars.

Two problems present themselves in connection with this group of taxpayers, first, to fix equitable rates, and second, to prevent evasion. At present absentee owners enjoy more favorable rates than residents and have opportunities for evasion which residents do not possess.

Porto Rican legislation follows the Federal law in calculating the surtax upon income above ten thousand dollars. The normal tax upon nonresidents, however, is at a flat rate of 6 per cent, with no exemption. These rules as to the surtax and normal tax are inconsistent, and a logical remedy might be to apply to the former a method similar to that now accepted for the latter. Such a plan and the present rule as to the normal tax must operate to deny exemptions to a very few non-residents who derive their entire income from Porto Rico. However, nearly all non-residents have income from sources outside of Porto Rico, and the reasoning justifying exemptions does not apply to them. Allowing exemptions, entails what seems to be an unjustifiable loss.

The objection to allowing an exemption would disappear, however, if the taxpayer's contributions were computed by ascertaining Porto Rico's share of a tax on the non-resident's entire income. Porto Rico now computes the surtax upon the income derived within its territory only, and the effect is not only to allow an exemption which may not be necessary but also to make the rate of tax lower than the effective rate which a share of the tax on total income would mean.

Since the Federal surtax rate is based on total income, including that derived from Porto Rico, and since the surtax rates on large incomes are higher than Porto Rican rates on the portion of income reported in the Island, the Federal government receives a certain amount of tax upon income earned in Porto Rico, even though a deduction is allowed for tax paid in the Island. This must be regarded as accidental, since the Federal government allows a deduction for taxes paid in Porto Rico up to the full proportion of the tax represented by the ratio of income from Porto Rican sources to total income. Evidently it would be desirable for Porto Rico to capture its full proportion of the total tax paid.

This might be accomplished through an act of Congress providing that a copy of the Insular return be filed with the Federal return, by persons on the mainland who derive taxable income from Porto Rico, and that the United States treasury then apportion to Porto Rico its full share of the tax paid, after making allowance for any amount paid to Porto Rico and deducted from the Federal tax. An alternative would be for Porto Rico to require non-resident taxpayers to declare total income, and apply the surtax rate on the total to the portion received from Porto Rico. The primary difficulty, however, is that non-residents commonly evade the Porto Rican surtax.

Opportunity for evasion is now offered due to the fact that surtax is not collected at the source. When income is sent from Porto Rico sources to a corporation or elsewhere out of Porto Rico, the distributions of profits of such corporations or partnerships are not taxed by Porto Rico.

If the corporation or partnership outside of Porto Rico derives half of its income from Porto Rico, its stockholders or members are supposed to pay the Porto Rican income tax, but experience proves that they neglect to do so and that under the present law they cannot be forced to pay. There is apparently nothing to prevent an amendment to the law to stop these opportunities for evasion by establishing suitable penalty collections at the source in order to secure enforcement.

The importance of the taxation of absentee individuals and evasion fostered by the present law, suggest the possibility of establishing a flat minimum surtax collected at the source upon all dividends and upon all income sent out of the country. Such procedure would simplify assessment and collection in that few non-resident individuals would then have to make returns to Porto Rico. It would mean a substantial increase in surtax payable on distributions of profits to stockholders with smaller holdings but one affecting only the classes which enjoy income from investments and include none of the numerous poor. It would not tax income reinvested in the Island and if the rate were moderate it would not affect appreciably the attractiveness of the Island as a place for investment of capital. It is believed that a rate of 3 per cent would be justified, while maintaining also the graduated surtax for individuals whose total income is very great. Whether a rate of 3 per cent or some other percentage is desirable, the principle of establishing a small minimum surtax may be recommended as essential to provide a reasonably simple means of taxing non-residents and of thus eliminating evasion which complicated procedure will invite.

Income Tax Administration. Any income tax is of such a nature that a considerable amount of evasion is unavoidable. This is true particularly of a graduated individual tax. Opportunities for evasion, however, are unequal; salaried employees pay on their whole income, while farmers, business men, and wealthy corporation stockholders can, with little difficulty, cut their taxes somewhat without much danger of detection or serious penalty. The problem of administering an income tax may be described as one of keeping evasion at a reasonable minimum.

The practicability of collecting any tax which rests upon an assessment by taxpayer's declaration obviously depends in part upon the willingness of the majority of the taxpayers to confine their fraud within comparatively narrow limits. If no fear of penalties is felt and serious evasions are attempted by a large number of taxpayers, the enforcement problem becomes almost hopeless.

There is evidence of an extraordinary resistance to the collection of the full income tax in Porto Rico. The percentage of the true net income which the taxpayers declare in their returns cannot be estimated even approximately, but it is safe to conclude that it is very much less than the percentage which the declared income is to the income as determined by the Income Tax Bureau after investigating the returns. The Bureau reports the following increases and decreases in net income as the result of the tax returns audited by it during the fiscal year 1927-28:

NET INCOME AS REPORTED BY TAXPAYERS AND AS ESTABLISHED BY THE BUREAU'S AUDIT, 1927-28
(In thousands of dollars)

Taxpayer	Net Income as Computed by		Change		
	Taxpayer	Bureau	Increase	Decrease	Net Increase
Corporation	6,889	10,941	4,068	16	4,052
Partnership	2,655	3,774	1,127	7	1,120
Individual	6,685	11,117	4,453	20	4,433
Total	16,229	25,832	9,648	43	9,605

According to these figures and corresponding figures for taxes, the three groups of taxpayers declared only the following percentages of the correct income and tax:[15]

Taxpayer	Percentage of Income Declared	Percentage of Tax Declared
Corporation	63	63
Partnership	70	68
Individual	61	45
All	63	58

These figures, however, probably give a somewhat exaggerated impression, because the cases investigated may not be typical of all returns. Another view of the situation can be obtained by analyzing the assessments recorded during the fiscal year 1927-28 so as to ascertain the percentage of these which pertain to the calendar years 1927 or 1928. Assessments pertaining to 1927 and 1928 may be called immediate asesssments and are mainly, but not wholly, those based upon the taxpayers' declarations, while later assessments include revisions, generally upward, made by the tax office. In 1927-28, $1,872,000 was assessed immediately according to this definition, and $576,000 was assessed later. These figures are divided by class of taxpayers as follows:

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[15] A very small allowance must be made for errors by the inspectors. Assessments carried to the Board of Review and Equalization obtain on an average substantial reductions, but the number of cases carried to the Board is relatively small.

COMPARISON OF IMMEDIATE AND DELAYED INCOME TAX ASSESSMENTS, 1927-28

(In thousands of dollars)

Time of Assessment	Total	Individual	Partnership	Corporation	Withheld at Source
Immediate	1,872	267	213	1,335	58
Later	576	289	89	183	14
Total	2,448	556	302	1,518	72
Percentage immediate	*76*	*48*	*70*	*88*	*81*

There is some reason to suppose that the percentage of immediate assessments of the tax has recently been increasing.

Since the income tax is so largely assessed as a result of investigations made by the Bureau, it is not surprising to find that there are great delays in assessing and collecting it. The Bureau is allowed five years to make its investigations and generally takes advantage of this delay to study the returns of each taxpayer over several years at a time. Disputes which arise may not be settled till many more than five years have passed. The final assessments of income tax recorded in 1927-28 pertained to income of every one of the years since 1914, when the first income taxes were assessed. This is shown in the following table:

ASSESSMENTS FINALLY SETTLED IN 1927-28

(In thousands of dollars)

Year	Total Assessed	Individual	Partnership	Corporation	Withheld at Source
1914-1919	22	14	—	8	—
1920	66	31	1	33	1
1921	21	8	7	6	1
1922	19	10	3	6	—
1923	67	16	29	21	—
1924	130	85	14	28	2
1925	129	39	25	63	2
1926	122	86	10	19	8
1927	1,819	264	169	1,330	57
1928	53	3	44	5	1
Total	2,448	556	302	1,519	72

The slowness of assessing means that a very large sum of tax revenue is always owing to the government. The amount accrued and unpaid because not yet finally assessed in 1929 may be estimated at well over the amount of the current year's collections. There has been a large sum in litigation in the courts. Over a million dollars of taxes are in dispute before the Board of Review and Equalization. From a quarter to a third of the curent year's assessments remain to be made after tax returns are fully revised by the inspectors.

Information as to the amount of tax added as revisions are made is the principal evidence of evasion of the income tax. It is impossible to believe that nearly all of the net income which the taxpayers fail to disclose is discovered by the Bureau. Opportunities to discover certain classes of evasions are very limited, and the work involved in going over all available figures in search of evasion is prohibitive.

Evidence of great evasion by large corporations was obtained by the Auditor of Porto Rico during a special investigation made by his office. This study resulted in additional assessments running into millions of dollars, but included a period when the excess profits tax was in effect and sums in dispute were unusually large. It proved, however, that obvious errors had been made and suggests the need of periodical independent test checks of income tax assessments as a regular feature of the procedure.

Some evidence of evasion was obtained from a study made of foreign holdings of property in Porto Rico and rates of return upon such holdings. There is reason to believe that the returns filed of dividends paid to nonresidents in some cases understate the larger American holdings, and that income from direct ownership of land and business in Porto Rico is much greater than that declared by taxpayers. Also, although the Bureau has given special attention to the evasion of the tax on rents by tracing property ownership, the income tax is collected on an amount which is thought to be materially lower than the actual total income of large property holders, both Porto Rican and nonresident, from this source.

In dealing with the many delayed and imperfect returns, the Department has not resorted in recent years to criminal prosecutions, but in a very few cases the 50 per cent penalty for a false or fraudulent return willfully made has been imposed. Many returns have been prepared by the Department when the taxpayer failed to make one, and the 25 per cent penalty collected. Numerous penalties of 5 per cent are collected for deficiencies due to negligence.

The cost of collecting the income tax in 1927-28 is estimated as follows:

DIRECT EXPENSE		
Salaries:		
Paid from the Income Tax credits, excluding employees working in other bureaus	$43,800	
Paid from Income Tax credits to employees working part time for the Board of Review and Equalization	4,200	
Paid from the credit for per diem, travel, temporary employees, etc.	32,000	$80,000
Direct expense other than salaries		16,257
Total direct expense		$96,257
SHARE OF OVERHEAD		
Treasurer's Office	$7,268	
Accounts and Disbursements	9,555	
Attachments	662	
Collectors	21,243	
Review and Equalization	12,947	51,675
Grand Total		$147,932

Since collections for the year amounted to $2,178,000, the cost as indicated above was 6.8 per cent of the total. The credits voted for the income tax were not all used for that purpose, but were assigned in several instances to other bureaus of the Department. Had the voted credits all been applied to income tax the cost of collection would have been nearly $200,000. So long as evasion is believed to be general, high collection costs are to be expected. For a few years at least the expenditure for collection might well be increased, as was apparently intended by the legislature.

The Chief of the Income Tax Bureau receives a salary of $3,300 and the assistant $2,600. An inspector at large who has important responsibilities for supervising inspection work receives $2,500. Eighteen other inspectors receive salaries ranging from $1,700 to $2,300. Twenty office employees examine returns in the Bureau and handle other clerical routine. The work is better organized than that of many other government offices. There are a number of competent men in the Income Tax Bureau, though the engagement of income tax experts is necessarily handicapped by the low scale of salaries. No systematic plan has been instituted for the examination or instruction of employees.

No attempt will be made to describe or to criticize the details of the Bureau's procedure in investigating returns. The work of individual inspectors is planned and supervised far better than the work of property tax assessors. A good deal of ingenuity seems to have been displayed in special investigations.

It is a notable fact that revenue officials in Washington have never co-operated with the Porto Rican income tax administration; and the Insular authorities have not even taken advantage of the provisions of the Federal law permitting them to examine the Federal income tax returns of corporations.

After an assessment is once notified to the taxpayer, the problem of collecting is not neglected. Some delay occurs, however, on account of the failure to require remittances to be made when filing a return. The Department reports that over half of the taxpayers do not pay the tax, or first installment of one-half the tax, when filing their returns. Under the law the penalty of 1 per cent a month for a delay in payment is not applied until the taxpayer has been given a notice of his assessment. This defect in administration arises from the practice of collecting the individual's tax through local tax collectors, who are informed of the amount of the tax when the taxpayer is notified of his assessment. This procedure is both clumsy and slow.

Criticism of the Income Tax. The advantages of the income tax are clearly sufficient to justify all practicable extensions of its use, and some of the rates under the Porto Rican law are obviously low. This is true particularly of those upon small individual incomes. Indeed, it might be argued that the present rates are low upon almost all classes of income.

After examining the evidence of evasion, however, we must conclude that these rates cannot at present be increased to any material extent. The main income tax problem in Porto Rico is obviously one of administration. In fact, evasion is apparently serious enough to present a critical difficulty. So long as rates are moderate or low, evasion is not unduly encouraged and an active and efficient administration may hope to keep it within reasonable proportions. If rates are high, some danger exists of the income tax being discredited and eventually repealed. These comments apply no less to exemptions than to nominal rates. A reduction of exemptions would impose additional work upon the Income Tax Bureau, and for the present the aim should be to simplify assessments and thereby improve their chances of success. For this reason, in fact, even an increase in exemptions might be favored.

So long as the rates of the income tax upon individuals are very low, the heavy burden that the tax imposes upon the income of many small partnerships is difficult to defend. Whatever the theory of the present rates may be, in practice many members of partnerships now pay a heavy tax upon low-earned incomes; and no valid reason can be shown why the law should not be amended so as to provide in their case the usual exemptions and low rates.

On the other hand, two changes can be suggested which would increase collections without affecting appreciably the work of the Bureau or complicating the assessment problem. The first of these is to impose a minimum tax of a few dollars to be collected whenever any taxable income exists. This would be unimportant as a revenue measure, but would eliminate the unprofitable absurdity of collecting only a few cents from many fairly well-to-do individuals.

The present discrimination in favor of non-residents might be corrected without adding to the difficulties of assessment. A minimum 3 per cent surtax on dividends and upon income sent out of Porto Rico would greatly simplify the procedure, by rendering it possible to collect much of the surtax at the source. This would be true even if the surtax were paid in brackets determined by the total income of the non-resident.

A further increase in income tax collections and reduction of evasion would result if Congress should act favorably upon the recommendation that the Federal authorities pay to the island territories the maximum amount of the deduction allowed continental citizens for income tax paid to such territories. Such a plan would lead to an equitable division of tax between the National and Insular governments without imposing upon the latter the necessity to extract information from persons residing at a distance.

Irrespective of the action Congress may take, the Porto Rican law is defective so long as it does not provide means to compel non-residents to make returns.

Whether non-residents pay surtax upon their income from Porto Rico in brackets fixed by their total income or pay as they now do, the Department should have authority to require that all information essential for making correct assessments be reported to it by foreign corporations and partnerships receiving profits from Porto Rico. If surtax is to be paid in brackets determined by total income, the returns required from non-residents should include information as to all Federal taxes assessed upon them.

A further defect in the Porto Rican law is its failure to take advantage of the accounting profession in attempting to obtain accurate tax returns. Taxpayers might be encouraged to submit returns prepared by competent accountants, by an amendment providing that a certificate of a certified public accountant be accepted as prima facie evidence of the correctness of a return. The law should at the same time impose severe penalties upon accountants for fraud or gross negligence, even though similar penalties upon taxpayers are not warranted. If returns by certified public accountants were accepted without revision, both the Department and taxpayers would be relieved of a great expense and many difficult tax disputes would be avoided.[16]

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[16] The suggested use of the accounting profession to assist in enforcement of the income tax act is provided for in the Arkansas Income Tax Act of 1929, as follows:

Article 5—Section 25, Paragraph 3. "Whenever a return is filed and a certified public accountant, duly authorized under the law of Arkansas, certifies that he has made an audit of the taxpayer's records for the income year and has prepared the return to which his certificate is attached, such return shall be accepted by the Commissioner as prima facie true and correct."

Article 6—Section 30, Paragraph 7. "Any certified public accountant who shall make a false certificate to any return as filed and offered to the Commissioner pursuant to paragraph 3 of Section 25 herein shall be guilty of a felony and shall, upon conviction thereof, be fined in any sum not to exceed One Thousand ($1,000.00) Dollars, or be imprisoned not to exceed one year, and his certificate shall be forthwith canceled and revoked."

The organization of the Bureau of Income Taxes is faulty principally in lacking a small group of higher paid positions to be held only by qualified tax experts. All the salaries attached to the more responsible posts in the Bureau are now very low. The absence of staff training and regular routine examinations in questions of income tax procedure is also to be criticized.

The Insular Treasury has been remiss in not taking advantage of the privilege offered by the Federal law to examine Federal returns. An examination of the returns of American corporations operating in Porto Rico would be of great value to the Bureau. Some arrangement should be made whereby the Federal Bureau of Internal Revenue will regularly give to Porto Rico both information and expert guidance.

Credit should be given the Insular government for having established a necessary auxiliary feature of its income tax procedure in making an independent check of income tax assessments through the Auditor's Office. A continuation of this form of auditing is perhaps the most important single step which can be proposed in an attack upon the evasion problem.

On the whole, the Bureau must be given credit for activity in increasing tax assessments. Its principal officers seem to have recognized the duty of eternal vigilance and to deserve every encouragement. Some indications appear of a slight decrease in evasion. With the suggested changes in the present law and the proposed strengthening of the Bureau's staff, there is good prospect that it would be possible within a few years to collect the income tax without excessive loss.

III. EXCISE AND MISCELLANEOUS TAXES

All Porto Rican taxes, except the property and the income taxes already discussed, are described in the present section. They consist principally of what is known locally as the excise; but the Islanders give that word an exceptional meaning. In official reports it signifies taxes collected by means of stamps, excluding certain charges justified by special government services. A part of this revenue is collected under the provisions of a so-called "Excise Law." A Bureau of Excise Taxes is one of the three units of the tax administration, though its field of duty does not correspond exactly with the law just mentioned. The total of excise collections as shown in financial reports, sometimes including and sometimes excluding special fund collections, is a figure which is meaningless to one who has not made a study of the tax system, and for this reason it is here combined with all other taxes except property and income taxes and the whole group is analyzed in a manner not employed in official reports.

Excise and miscellaneous taxes produce a greater total revenue than the property tax and a far greater total than the income tax. The collections in the fiscal year 1927-28 were $8,174,000. Practically all of this revenue goes to the Insular government, the municipal share being only $397,000. In contrast with the practice in case of property taxes, the rule in this group is that the Insular government collects its own taxes and leaves to the municipalities the collection of theirs.

These excise and miscellaneous taxes comprise many relatively small items, which may conveniently be listed under six main heads as follows:

This classification groups together first, consumption taxes, including general and special taxes upon sales and upon public spectacles, betting, racing, and boxing. Within the totals for "betting and races" and "boxing" are included some licenses which are not separated because they are unimportant and would necessitate too many classification heads. Consumers, who are presumed to bear the weight of this group of taxes, do not pay them directly to the government. The taxes are actually paid by some merchant or business firm, and while their burden bears directly on the business to the extent that increasing prices reduce sales, its actual amount is passed on to buyers of goods and services. The buyer may be a private individual who is satisfying a personal want or a business which must use the taxed article and which includes the tax in the cost of its operations.

The second group of imposts, upon production for export, includes only the sugar tax. This is a business tax which can not be shifted to the consumer. It is paid either by the producer or by the cane land owner.

The group headed "Other business taxes" includes licenses and taxes upon a limited number of business transactions.

Some of these are unquestionably passed along to consumers as readily as sales taxes, as for example, insurance taxes and three franchise taxes which do not appear in the figure shown because not paid in cash in 1927-28 for reasons explained later. A tax on public contracts is unquestionably shifted to the government.

COLLECTIONS OF EXCISE AND MISCELLANEOUS TAXES
(In thousands of dollars)

Classification	1927-28		1917-18	
Taxes upon consumption, including amusements:				
General sales	1,020		....	
Alcohol			342	
Tobacco sales	2,545		1,051	
Motor vehicle sales	582		28	
Various sales—excise law	257		174	
Various sales—municipal	4		....	
Public spectacles	35		....	
Motion picture films	14		1	
Betting and races	212		....	
Boxing	14		....	
	——	4,683	——	1,596
Taxes on production, for export—sugar		605		....
Other business taxes:				
Licenses—excise law	353		192	
Licenses—municipal	269		201	
Notarial instruments and affidavits	171		141	
Property registration	101		34	
Insurance	77		30	
Franchises	9		9	
Government contracts	43		....	
	——	1,023	——	607
Inheritance tax		276		53
Special road taxes:				
Gasoline tax	620		....	
Motor vehicle licenses	541		81	
	——	1,161	——	81
Other taxes and fees justified by expenses:				
Betting and races	50		....	
Boxing	13		....	
Fresh meat sales	94		107	
Foreign coffee	7		....	
Fertilizer	18		....	
Soil amendments	1		....	
Cattle feeds	3		....	
Opium licenses	2		1	
Foreign corporation licenses	3		4	
Bank licenses	4		....	
Property registrations	90		60	
Harbor fees	39		24	
Permits, etc.—municipal	29		11	
Coffee inspection	2		....	
Tobacco inspection	71		34	
	——	426	——	241
Total excise and miscellaneous taxes		8,174		2,578

The group of special road taxes, including the gasoline tax and motor vehicle licenses, evidently is a charge which the users of motor vehicles must pay.

The final group, "Other taxes and fees justified by expenses," embraces a number of charges which are hardly taxes in the strict sense of the word. They are charges designed to reimburse the government for the expense incurred for the special benefit of the taxpayer or with a view to protecting the public by regulating the taxpayer's business, and are classed among taxes because from the viewpoint of the man who pays them they are involuntary contributions resembling a regular tax. Some of the charges in question duplicate items appearing under consumption taxes and business taxes, the reason being that a charge for a special government service is levied in an amount greater than the expense incurred and the excess above the contemplated or actual expense is recorded as a tax unassociated with any item of special expenditure.

In the preceding table the column giving the collections of the year 1917-18 shows that the system of excise taxation was formerly much simpler than it is today. The law was changed relatively little between 1901 and 1918, but when the Island's adoption of prohibition in 1918 deprived the government of over a million dollars of revenue from alcoholic liquors, other subjects of taxation were sought. By 1920 new excise legislation had been enacted to cover the amount thus lost. During three years after 1920 there was a small reduction of revenue from these sources. Finally, during the last five years income from excise has risen over four million dollars. Large single increases have been due to the new general sales tax, the gasoline tax, the sugar production tax, and added levies upon betting and races. Extraordinary increases have also occurred in collections from the tobacco taxes and motor vehicle sales tax. Insular licenses also have been raised materially.

The great complexity of these miscellaneous taxes is not brought out fully by the preceding table, since many minor taxes and licenses are grouped together under general headings. Because of the great number of unimportant items it is impossible to discuss fully every one of them. Therefore attention is given first to sales taxes, beginning with the general sales tax and following with a section taking up all of the higher rate sales taxes as a group. Later sections deal with the sugar production tax, with business licenses, and with special road taxes, such as the gasoline tax and motor vehicle licenses. Finally, a few paragraphs are devoted to such questions relating to the remaining minor taxes as seem to deserve special comment.

The Two Per Cent General Sales Tax. The legislature which met in the spring of 1925 was confronted by an alarming budget deficit. It decided that more revenue must be found and the present 2 per cent general sales tax was one of the means adopted to obtain it. The law was generally regarded as an emergency measure. That emergency, if a deficit of the Insular general fund may be so called, still existed at the time of the recent hurricane, and as a result of the hurricane it may be expected to continue for some years longer.

The general sales tax was not adopted without taking every precaution to reduce its burden upon the poorer classes. Understanding that the tax would fall upon the consumers, all foodstuffs were exempted. Other exemptions were added as follows:

1. Sales subject to taxes at higher rates than 2 per cent.
2. Gas and electric current.
3. Fertilizers, which are subject to an inspection fee under another law.
4. Charcoal and firewood.
5. Jewels and precious and semi-precious stones.
6. Direct sales by farmers of their crops and livestock.
7. Newspapers, newspaper advertisements, "library, scientific, and philosophical works, and public school text books."

Due to these exemptions, particularly that of foodstuffs, the tax falls upon considerably less than half of the estimated total of all sales.

The tax is paid only on the first sale of the article, and a section added to the law by a recent amendment extends it to articles produced or imported for consumption directly without sale. The tax is assumed not to apply to sales to a purchaser who is outside of Porto Rico. It is, therefore, strictly a tax upon consumption, though it is collected at the time of the first transfer of the taxed article.

Merchants whose monthly sales are less than $100 are exempt from the tax. Such merchants, however, generally buy taxable articles from a Porto Rican wholesaler and, therefore, do not receive the full benefit of this exemption.

A general sales tax in the form in which it is found in Porto Rico is evidently more lenient upon the poor than similar taxes which do not exempt foods. The Island's large poor population spends in the neighborhood of fifty dollars per capita per annum for all articles consumed. Out of this small sum very little money is available for anything except food. A questionnaire answered by a large number of workers reported 98 per cent of their family incomes as spent for food. Although these workers doubtless overestimated their food expenditures, nevertheless, the true percentage is a very high one. By exempting $45 or more of annual per capita expenditure for food, the poor would be spared a tax of about one dollar per capita or five dollars or more per family. In this assumption the poor probably pay at present no more than a twentieth of the tax that would be taken from them by a general sales tax which did not exempt food.

The Department of Finance has recommended that the tax be reduced to 1 per cent and be applied to all commodities. This would increase the tax upon the poorer part of the population about tenfold. Otherwise stated, the effect of the Department's plan would be to decrease the consumption of the very poor by 1 per cent, while their consumption is reduced by the present sales tax only one-tenth of 1 per cent. Since this class is living on the margin of subsistence and the lives of many are actually shortened by lack of sufficient nourishment, a tax which reduces consumption by any amount is regrettable, and a tax which would reduce it by 1 per cent would be a material injury.

Its light incidence upon the very poor is an argument in favor of the present form of general sales tax as a permanent revenue measure in a country where poverty is as common as it is in Porto Rico. We may seriously question whether any other tax of primary importance is as small a burden upon them. So far as the incidence of the property tax and income taxes rests upon the production or selling of foods locally, these taxes tend to increase food prices. Although both taxes have the advantage of affecting very little the costs of certain businesses, both influence prices to some extent, the property tax much more than the income tax. As was pointed out earlier, of about three million dollars of property tax collected upon houses and upon business firms selling locally, a few hundred thousand dollars may fall finally upon the poor. The property tax upon land has been assumed to fall wholly upon the owner, but the tax upon land used to grow minor crops for local consumption may be shifted, at least in part, to the poor consumer. Possibly, therefore, the poor bear a relatively greater share of the property tax than they do of the general sales tax.

Porto Rico's sales tax is progressive up to the point where the percentage of income spent for food becomes more or less constant, and that figure is probably well up the income scale. The tax is proportional to income from the point that it stops being progressive until incomes are so high that they appreciably exceed the taxpayer's normal expenditures. In the case of the middle-class family, as in the case of the very poor, the exemption of food serves a useful purpose, since the tax is greatly reduced when the family adopts a hard-times régime and eliminates all but absolute necessities from its budget.

The 2 per cent sales tax affects not only the people who consume personal and household goods but also business enterprises which use coal, chemicals, lumber, and other materials and supplies. Ignoring for the moment the effect of applying this tax to raw materials used in manufacture, the taxation of fuel and supplies used by business is of questionable wisdom. Taxation of incidental supplies is too small a matter to deserve particular attention. No exemption could be recommended unless a considerable charge is involved. Taxation of industrial fuel, however, may impose a heavy burden upon certain industries. It adds to the cost of manufactured articles which, if sold locally, are again subject to tax when sold, or if shipped abroad are properly exempted from a Porto Rican consumption tax. In a country which is trying to develop its industries, industrial fuel is a particularly ill-chosen subject for taxation. The same is true of the taxation of purchases of industrial machinery. It is generally recognized that the introduction of machinery and industrial development should be encouraged for the good of all classes of the population.

Where the sales tax falls on materials employed in the manufacture of locally consumed products, the seller is allowed to deduct it from the sales tax he pays on the finished article or commodity. This deduction, however, is not specifically authorized in the law. In order to prevent double taxation and to reconcile the law with actual practice, an amendment is necessary.

When the tax falls upon materials going into manufactured articles later exported, there is now no rebate of the tax. This is at least illogical, though it may affect actual business very little. In the sewing trades, for example, raw materials are generally worked up on commission, so that no actual sale of the materials or their products occurs within the Island.

The law by implication exempts sales to persons outside of Porto Rico, but fails to provide for transactions where there is a sale to or by a producer or dealer in Porto Rico which is only as a step toward export. In nearly all cases exporters can arrange matters so as to avoid payment of the tax, but a law which unnecessarily encourages evasion in order to prevent injustice is open to criticism.

Since the courts have held that the "original package" rule, which prohibits state taxation of articles in interstate commerce, does not apply to goods brought into Porto Rico from the continental United States, the Island's sales tax is in some cases an impost upon imports. To make Porto Rico's tax authority doubly clear in this matter, Congress has expressly authorized the taxation of articles brought into the Island if similar articles are taxable when produced in Porto Rico.[17]

Most of the opposition to the general sales tax comes from retail merchants. An impression prevails that the tax is in considerable part not added to selling prices and, therefore, falls on dealers. This idea can be readily understood. The practice in San Juan is to add the tax on invoices, but to omit any charge to cover the tax on cash sales in the stores. Many purchasers arbitrarily refuse to pay the 2 per cent when settling their monthly bills. Merchants also allege that the tax is evaded by their competitors and that it, therefore, works a hardship on those who are honest. Some of them claim that mail-order houses and other firms in the United States gain Porto Rican trade unfairly through the disposition of the public to evade the tax by buying surreptitiously from the mainland.

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[17] Amendment to Section 3 of the Organic Act, March 4, 1927.

It may be doubted if these objections are valid. The 2 per cent tax requires a large monthly payment by the merchant who thinks of it as an additional expense of doing business, against which he naturally protests. Even if its effect is merely to reduce his sales 2 per cent, assuming that the amount of money which his customers have to spend is fixed, it cuts down his net profits. Much of his overhead remains the same, even if his sales diminish; so that a reduction of 2 per cent in their amount may reduce his profits by a higher percentage. Firms making small profits, therefore, may be seriously affected by even a small reduction in sales. On the other hand, merchants as a class are similarly affected by competition and by changes in public buying, and accommodating themselves to the sales tax should be among the simpler adjustments they have to make.

Alleged evasion presents a more serious problem. Although it may be doubted if this is great enough to affect materially competition between business establishments in the mass, it is always possible for it to have an injurious effect in certain lines of trade. The opportunity to evade the tax is greatest when one store sells both taxable and exempt articles, such as foods and books. A small shop has a better opportunity to evade the tax than a large one. Therefore, the problem of evasion places a heavy responsibility upon the government, not only to collect the revenue due it but also to prevent unfair competition.

Two changes in the law would lessen the likelihood of evasion and so help to meet valid objections to the tax on the part of merchants. These changes are a revision of the penalties and the taxation of imported goods at the time of receipt instead of at the time of their first sale. At present only a very small money penalty is authorized for a failure to pay the tax promptly,[13] and the merchant who attempts to reduce his payment by small amounts, pretending that he has made an error in his books, can escape without adequate punishment.

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[13] Ten per cent of the amount due.—Section 77.

If the cash penalty were more severe, small "mistakes" would be unprofitable. The general sales tax law was enacted at a time when the taxation of articles brought into Porto Rico was thought to be unconstitutional. It was necessary, therefore, to provide that the tax be collected at the time of the first sale. Now that it is established that the tax may be imposed upon goods at the time of their importation or production, a way is open to simplify the assessment greatly. With the co-operation of the United States Treasury Department, the Insular government can obtain copies of invoices showing the nature and value of all imported articles, and in this way obviate the necessity of making frequent inspections of merchants' records.

Assuming that these administrative problems are solved and that it is impossible to reduce greatly the total burden of taxation upon the Island, the wisdom of repealing the general sales tax is doubtful. In order to abolish it, alternative revenue measures should be found which will not burden the smallest incomes appreciably either directly or indirectly, and which will not lessen employment by impeding the development of manufacturing and of production for export. If the tax is continued, its objectionable effects upon certain manufacturing and exporting business can be readily removed by amending the clauses covering exemptions.

High Rate Sales Taxes. Commodities sold in Porto Rico or imported for consumption there may be divided into three classes for purposes of taxation: (1) Those entirely exempt; (2) those subject to the 2 per cent tax; and (3) those subject to varying rates higher than 2 per cent. Articles of the last-named class, if subject to taxation unrelated to any special requirements of inspection, are taxed by the Excise Law, a statute which has been amended or reenacted at almost every session of the legislature during the past twelve years. Before the general sales tax was adopted in 1925, there were only two general classes of commodities—those exempt and those subject to various high tax rates.

The original excise law was a part of the Porto Rican Revenue Act of 1901. Most of its provisions were adapted from the Federal Internal Revenue Act. It is to be noted that sales of alcoholic beverages and tobacco were always the main sources of excise revenue. Other items in the original law were matches, playing cards, oleomargarine, medicinal preparations, toilet articles, perfumeries, cosmetics, and arms and ammunition. In 1907 the sales taxes yielded the following amounts:[19]

Alcohol	$1,099,919.27
Tobacco	531,891.33
All other	46,999.45
Total	$1,678,810.05

Alcohol and tobacco produced 97 per cent of the total.

Although some minor changes in rates were made, the original schedule was not modified materially until after 1917. In order to make up for the resulting loss of revenue when prohibition was adopted, many articles, such as motor vehicles, phonographs, pianos, photographic apparatus, chewing gum, mats and carpets, lighting apparatus, rain coats, and hand fans were taxed for the first time. After experience with the complicated new law, some of its sections were repealed, and the tax upon medicinal preparations and perfumeries was abolished, it is said, because evasion was general and could not be prevented. To offset these eliminations, taxes were laid on other new articles at almost every session of the legislature.

The following table shows in detail the articles subject to taxation during the fiscal year 1927-28. The items are arranged in three groups according to annual yields:

Special Sales Taxes: Subjects, Yields, and Rates, 1927-28

Subjects	Yield 1927-28	Rates
Items yielding over $25,000 each:		
Cigarettes	$2,312,627	Specific duties equal to 100 and over per cent ad valorem
Motor vehicles	581,803	7 per cent ad valorem
Cigars	230,964	Specific duties equal to 10 and over per cent ad valorem
Matches	97,258	30 cents a gross of boxes
Total	$3,222,652	
Items yielding over $5,000 and not over $25,000 each:		
Hydraulic cement	$24,699	2½ cents per hundredweight
Lubricating oil and grease	22,115	2 cents a gallon

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[19] Governor's *Report*, 1907, p. 100.

SPECIAL SALES TAXES: SUBJECTS, YIELDS, AND RATES 1927-28 *(Continued)*

Subjects	Yield 1927-28	Rates
Playing cards	$13,826	50 cents a pack
Phonographs, organs, etc	13,800	7 per cent ad valorem
Jewelry	12,639	15 per cent ad valorem
Arms and ammunition	9,154	40 per cent ad valorem
Cash registers, etc	8,201	7 per cent ad valorem
Typewriters	6,710	7 per cent ad valorem
Prepared chewing tobacco	6,414	Repealed
Chewing gum	5,886	10 per cent ad valorem
Dynamite, powder, etc	5,108	10 per cent ad valorem
Total	$128,552	
Items yielding less than $5,000 each:		
Mats, carpets and linoleum	4,456	7 per cent ad valorem
Electric fans	4,428	7 per cent ad valorem
Adding and calculating machines	4,082	7 per cent ad valorem
Pianos, etc	3,216	7 per cent ad valorem
Portable lighting apparatus	2,234	5 per cent ad valorem
Photographic apparatus and supplies	2,025	7 per cent ad valorem
Stone	1,966	5 per cent ad valorem
Pianolas and accessories	1,953	7 per cent ad valorem
Bicycles, parts, and accessories	1,780	7 per cent ad valorem
Cut tobacco	1,561	3 cents an ounce
Safes	1,428	7 per cent ad valorem
Musical instruments	1,339	5 per cent ad valorem
Billiard tables and accessories	1,118	30 per cent ad valorem
Thermos bottles	616	7 per cent ad valorem
Glass show cases	609	7 per cent ad valorem
Chairs for dentists and barbers	355	5 per cent ad valorem
Total	$33,166	
Grand total	$3,384,370	

Like the 2 per cent sales tax, the higher rate sales taxes may be assumed to affect the pocketbooks of the consumers to the extent of all, or practically all, of the tax. They also represent a material burden upon merchants because they tend to lessen the demand for the taxed articles on account of their increased price. Also, to the extent that they invite evasion, they tend to encourage unfair competition between business houses.

An examination of the list indicates that a number of different motives account for the choice of the articles taxed. Arms and ammunition are evidently taxed at 40 per cent ad valorem with a view to discouraging sales, while motor cars are presumably taxed because they are regarded as purchases of the wealthy. Many other articles are apparently regarded as luxuries which are not purchased by the poor, or by others who could be injured by the tax. These include phonographs, organs, pianos, other musical instruments, jewelry, electric fans, portable lighting apparatus, photographic apparatus and supplies, billiard tables, bicycles, and thermos bottles, and perhaps also playing cards, chewing gum, and mats, carpets, and linoleum.

Still another group may have been selected because the articles were regarded as "business luxuries" or purchases of well-to-do firms. These include typewriters, adding and calculating machines, cash registers, safes, glass show cases, and chairs for dentists and barbers.

Cigarette and cigar taxes may be presumed to be justified as they are in the United States because low prices are thought contrary to the public interest.

Several items remain, however, to which none of the arguments cited in favor of a special tax apply. No apparent reason exists for levying such taxes on matches, hydraulic cement, lubricating oil and grease, dynamite, and stone. The tax upon matches is the only one in the group which produces a considerable revenue, and it falls upon an article of necessity used extensively by the poor and is added to retail prices. The taxation of oil and grease may be intended to apply to motor vehicles, but it falls also upon industry. Furthermore, the gasoline tax adequately serves the purpose of a special levy on motor traffic. High rate taxes on construction materials cannot be defended on any ground.

Conditions in Porto Rico, particularly the poverty prevailing there, justify any workable plan for taxing luxuries. In planning a revenue system the welfare of the masses should be considered first, and the masses in Porto Rico are not affected by luxury taxation. On the contrary they are adversely affected by a heavy tax burden upon business. Taxes which reduce profits also tend to reduce opportunities for employment. Luxury taxes upon the middle classes do not affect industry and do not impose a heavy burden on society or one that is not justified by government services enjoyed by all.

Yet Porto Rico's actual sales taxes are from the luxury point of view very disappointing. Some items which apparently are classed as luxuries do not properly fall within that definition, and, even if they did, they produce but insignificant revenue. Motor cars are the only item truly in the luxury class that have produced appreciable revenue, and they include many trucks used by business and busses and other public vehicles paid for finally out of the fares of the middle classes and the poor. In fact, Porto Rico's essays at luxury taxation have resulted in almost complete failure.

The little group of articles classed above as "business luxuries" illustrates one of the many undesirable forms of business tax. So far as taxes upon modern office equipment have any effect, it is to hinder the adoption of desirable economies which ultimately redound to the advantage of society as a whole.

Another serious fault in the present system of high percentage sales taxes is the imposition of rates which it is impossible to enforce. An outstanding example of this is the 15 per cent tax upon jewelry. This is a very serious burden to those engaged in a legitimate jewelry business, not only because of the reduced demand caused by adding the tax to prices, but principally because the government cannot protect the merchant from unfair competition. The same objection applies in less degree to other items in the list of special sales taxes.

The loss of revenue from dropping all the items from the list of special sales taxes given above except the four upon cigars, cigarettes, motor vehicles, and matches would be insignificant if, in fact, there were any loss after allowing for the increase in collections to be expected from concentrating the attention of agents on fewer items, and from the extension of the general sales tax. The loss would not be very great if the items dropped included the undesirable tax on matches and even that on motor trucks and busses. The principal tobacco taxes and the tax on personal automobiles produce approximately three million dollars of the present total collections of $3,384,000. It would, therefore, not be very costly to reform the present system by repealing all the less productive taxes, concentrating the attention of agents upon a few items, and abolishing avoidable burdens upon the poor and charges discouraging the introduction of modern improvements in business. There would be practically no net loss from wiping out nearly all of the small taxes.

It may be asked whether there are any other articles which should be taxed at high rates which now are omitted. The experience of the Federal government with its war taxes does not justify the expectation that Porto Rico can find subjects for successful luxury or other high rate sales taxes except tobacco and motor cars. Many reasonably productive luxury taxes could be suggested, but none which it would be possible to collect without encountering extensive evasion.

Neither does it seem desirable to increase rates of taxation of cigarettes, cigars, and motor vehicles. The cigarette tax is very high both in Porto Rico and in the continental United States. The trade is now so accustomed to the present rates there is no noticeable hardship. Evasion is not serious. The rate had been increased at different times up to a maximum in 1927 and was reduced in 1928; presumably because it proved injurious to the interests of Porto Rican cigarette manufacturers. The tax on cigars is much lower than that on cigarettes, but higher than the rate in the United States. The 7 per cent ad valorem tax on motor vehicles has not thus far seriously affected sales. Because of the success of present rates, it is natural to doubt the advisability of changing them.

Tax on Sugar Manufactured. Act No. 1 of the special session of 1923 levies a tax upon the manufacture of sugar at a rate of four cents per hundred pounds. This is another revenue measure inspired by treasury difficulties. It has been successful from a financial point of view, and in 1927-28 produced $600,000. Since sugar is primarily an export commodity, the tax is in effect an export tax, though not subject to legal objection on that account. Sugar is sold in a market which is not visibly affected by the cost of production in Porto Rico, and the tax is, therefore, definitely a charge upon producer's profits.

The average price per hundredweight of sugar exported during the year 1927-28 was reported by the Governor to be $4.51. This means that the tax amounted to nine-tenths of 1 per cent of the value of the commodity. The sugar industry as a whole has been earning large profits and thus far has absorbed the tax without apparent hardship. In arguing the wisdom of this tax, its defenders point out that Porto Rican sugar enjoys tariff protection to an amount of $2.206

a hundredweight. The tax is only 1.8 per cent of the tariff protection. The tariff upon Cuban sugar is $1.7648 a hundredweight and the Porto Rican tax is only 2.3 per cent of that figure.

The popular argument for the tax may be said to include three points: (1) The industry is owned largely by nonresident investors, many of whom are wealthy; (2) the profits of the industry have been enormous; (3) the tax is small, taking away only a small part of the advantage of protection.

Before endorsing the sugar tax as a special means of tapping a small share of the income of the wealthy and prosperous, it is important to be sure that the true taxpayers have been identified and to consider all the incidental effects of the tax. The primary question involved is not the amount of the tax, but its basis, namely, a hundredweight of sugar produced. It is important not to confuse the tax with one on net income, because it has an effect radically different from that of the latter tax. It is a tax on volume of business and on an export business which is essential to the present prosperity of the Island. It increases the cost of Porto Rican sugar and thus tends to limit the quantity produced as well as the net profit. The quantity produced, or the gross profit from sugar, represents over one-half of the gross income of Porto Rico from exports and affords the whole or part of the earnings of a large share of the population.

The incidence of the tax may be upon the mills which grind cane, or upon the *colonos* who grow cane. It was to be expected that the mills would not absorb the tax but would pass it along to the farmers, and actually it is not unusual for the farmers who raise cane to be charged for the tax when they are paid for their crop. The price paid for cane in turn determines the rental of cane land and the extent of the area which will be planted in that crop. The tax, therefore, affects land values. Land owners may claim to pay at least a large part of the tax. If they absorb the whole tax, the rest of the population will suffer from the results of a reduction in the cane area and a consequent shrinkage of the amount of employment offered by the sugar industry, of the profit of capital invested in the industry, and of the operations of the great number of people who are engaged in exporting and importing commodities serving the sugar industry. The effect is to substitute in some degree other, and presumably less remunerative, forms of agriculture for cane growing.

It is obvious that recent price changes and changes in types of cane have affected the area under that crop much more than the tax upon production, and from the experience of the past few years it may be judged that small changes in profits do not have much influence upon the amount of land devoted to its cultivation. Experience confined to a few years of exceptional prosperity should not be accepted, however, as conclusive.

Let us compare the tax with rent or with farm earnings in a further effort to ascertain, if possible, whether it is heavy enough to affect cane acreage. The Treasurer shows the latter to be 238,000 acres. The tax of 4 cents per hundredweight upon sugar produced during 1928 amounted to $598,000, or an average of $2.52 to each acre. The present assessed value of cane land is $42,690,000, but the true value is probably about 60 millions. The 4-cent tax, therefore, is equivalent to a tax of about 1 per cent upon true value, though reckoned on this basis it falls proportionately to each ton of cane produced on a given area and, therefore, is a heavier burden upon poor land than upon good land. Capitalizing the tax at 6 per cent, the value obtained is one-sixth of the estimated true value of cane land. From these figures it appears that the tax is by no means a small one in relation to the rent of cane land, and, therefore, under certain conditions, might considerably affect the acreage under cane.

On the other hand, a reason for supposing that the sugar tax will not greatly affect production is the great amount of cane raised on land that is valued at very much more than it could be under any other use. A small change in cost of production will not affect the use of the more expensive land but will be absorbed by loss of rent if not otherwise. The quantity of cane grown on the poorer grades of land, which do not have a rental value for cane use materially greater than their rental value for other crops, cannot be estimated, but it can safely be assumed to be small. This fact supports the view that as matters stand at present the tax will not cause a material reduction of exports.

The relation of the sugar tax to the general property tax also deserves additional comment. As now administered, the general property tax bears somewhat lightly upon cane land because the best land is favored in a degree by underassessment. Since it will hardly be argued that the sugar industry ought to be encouraged to the extent of systematically lowering its property taxes, the production tax tends to compensate for any unfair lightening of its payments to the government under the latter head.

If we admit that the sugar tax has provided a large revenue and has apparently caused no appreciable injury, and possibly will cause none, it is impossible to argue that it is an undesirable form of taxation. There is probably only one sound argument against the tax, namely, that at some time in the future conditions may so change that it will become harmful. Were it certain to be repealed whenever the sugar business is seriously depressed, it might even be advocated as a means of stabilizing sugar production, but there is clearly a danger that at some time it may be a harmful tax and not be repealed at the proper time.

Miscellaneous Business Licenses. Business licenses are a relatively unimportant source of revenue in Porto Rico, though somewhat more important than in the United States. The license taxes sometimes levied against corporations on the mainland are not found in Porto Rico. Those actually in effect fall upon a great number of tobacco dealers and other merchants and manufacturers who are licensed by the Insular authorities under the Excise Law, and also by the municipalities under ordinances applying to all commercial and industrial establishments within their jurisdiction. Altogether the public treasury receives between six and seven hundred thousand dollars a year from these sources.

Licenses are one of the several varieties of business taxes. They should be distinguished from excise taxes, which are intended to be shifted to consumers. They are a charge in addition to general taxes such as those upon incomes and property. A business license in a strict sense is a fee collected by the state for a privilege accorded to an individual or firm to engage in a business, and may be intended to cover costs of regulating or protecting that business. Heavy license fees may be charged in order to discourage a particular line of trade or consumption. In Porto Rico municipal licenses are graduated according to turnover, while most Insular licenses are of fixed amount for a given kind of business or else they are graduated very arbitrarily according to the size of establishments. Business licenses are ordinarily not intended to be shifted, but graduated taxes, and even the very unequal burden of the nongraduated taxes may in practice be shifted in considerable part. The shifting, however, is not necessarily a ground for objecting to the tax.

Municipal licenses impose a small extra tax burden; that is, a burden greater than that of the income and property taxes, upon practically all branches of business except agriculture and the professions. The tax ordinances of the several municipalities are not uniform, but in many localities rates conform to the provisions of a law approved by the legislature in 1914. Under this law the size of the license fee depends upon both the volume and the kind of business. There are three classes, as follows:

Class A—
Shops, stores, wholesale dealers, bakeries, shows, theatres, stables, garages, and other establishments of kinds which are generally not very large.

Class B—
Banks, public utilities, public warehouses, race tracks, foundries, piers, factories of various sorts.

Class C—
Sugar mills, brokers, commission merchants, "agents with permanent offices," and real estate agents.

A few lines of business escape taxation because they were accidentally omitted in defining the classes. For these three classes the tax rates on each $100 of turnover, or fraction thereof, are given below:

Annual Turnover	Class A	Class B	Class C
$500-$20,000	$0.25	$0.10	$0.025
$20,000-$50,000	.15	.10	.025
$50,000-$100,000	.10	.10	.025
$100,000-$1,000,000	.05	.05	.025
Over $1,000,000	.025	.025	.0125

Comparing these rates with the 2 per cent sales tax, it appears that the license begins with a maximum rate in class A of a little more than one-tenth of the sales tax, but falls to a minimum of a little more than one-hundredth in classes A and B, and to one-half of that in class C. This tax, however, applies to food sales and to manufactures for export and is collected as many times as an article is sold. Merchants, including wholesalers, with gross sales of $100,000, are supposed to pay approximately $145. A sugar mill with gross sales of $100,000 pays $25. A large sugar mill pays at half the rate imposed upon a large manufacturer of other products. In general the rates on small and moderate sized commercial business houses represent very conservative contributions, while the rates on very large establishments are extremely low.

The municipalities reported collections of $269,000 in license fees for the fiscal year 1927-28.

On the whole, rates and yields are so low that it is impossible to attribute material benefit or injury to municipal licenses. The smallness of the injury, however, is little excuse for a regressive scale which makes those who are least able to pay bear a greater tax in proportion to turnover. The smallness of the burden is also no excuse for an avoidable burden upon the very poor, since the tax is certainly shifted in large measure and the licenses paid by food dealers weigh upon the poorest classes. Other defects in the present system, which can be remedied by redrafting the law, are the failure to distinguish between wholesale and retail trade and the discrimination between sugar mills and other manufacturers.

If the income tax is eventually successful enough to justify its extension, all additional taxes paid by business might take the form of a small additional tax upon the net income from their operations. A gross turnover basis of business taxation is probably the least desirable of any that can be proposed. When applied to domestic trade it is in final analysis merely a competitor of the general sales tax and duplicates tax machinery with no gain in revenue. Such a tax on export business can be defended only in case it is sure to have no appreciable effect upon production. If the time comes when the income tax can be increased so as to replace the present municipal licenses, however, it may very probably be decided that the increase should apply to all incomes rather than to business incomes alone, or in other words that there should be no extra tax burden upon traders and manufacturers.

The collection of municipal license fees is badly neglected in many towns. Taxpayers are sometimes allowed to compute their tax on a lower volume of business than they actually have, and considerable amounts are known to be assessed and never collected. One objection to the present municipal license system is that adequate enforcement would be costly. Generally it is an undesirable form of tax. If it is to be continued, even for a few years, its administration should be transferred to the Insular Department of Finance, whose present machinery for collecting excise taxes can take care of municipal license fees without material added cost.

Insular licenses upon dealers in alcoholic liquors and tobacco were provided for in the first revenue laws adopted after the American occupation. Later acts contain provisions for licensing dealers in and manufacturers of other articles taxed under the sales tax laws. A few licenses exist, however, corresponding to which no sales tax is now collected. The lines of business now licensed are as follows:

> Establishments manufacturing alcohol, cigars, cigarettes, medicines, perfumery, and glass show cases, denaturing plants, tobacco strippers, and cutters and polishers of precious stones.
>
> Wholesale dealers in alcohol, denatured alcohol, beverages, drugs; perfumery, cigars, cigarettes, twist tobacco, leaf tobacco, gasoline, electrical supplies, motor vehicles, bicycles, cameras, and billiard tables.
>
> Retail dealers in alcohol, denatured alcohol, beverages, drugs, perfumery, cigars, cigarettes, twist tobacco, gasoline, electrical supplies, motor vehicles, bicycles, cameras, and billiard tables.

Business houses paying the general sales tax are not licensed. Rates are determined by the kind of business or by the size of the establishment. It is left to the Department to define the size classification, and it has assigned classes according to volume of transactions and the size of the town where establishments are situated, but without formulating written rules to guide its agents. This practice apparently has not caused any great protest from taxpayers. Distillers of alcohol pay either $600 or $400 annually. First-class wholesale dealers in gasoline pay $800. The highest rate is $3,200 for first-class dealers in jewelry. However, most of the license rates are low, ranging from $4 to $40 annually.

The total number of Insular licenses outstanding exceeds 22,000 and the fees collected in 1927-28 amounted to $353,000, or an average of $16 per license. The low average is due principally to the great number of small retail tobacco dealers.

Insular license taxes are essentially a device to obtain an additional revenue from the trade which pays special sales taxes. The alcohol trade is no longer taxed except by license, because since prohibition was voted the yield of the sales taxes had been too small to justify their collection. Presumably, even if other special sales taxes were abandoned licenses of dealers might be retained. The same reasoning which justifies a special sales tax also justifies a moderate license. The amount of the license, however, is fixed in an arbitrary way, and the heavier charges may be objected to on that account. In fact, the whole plan of licensing business without well-defined rate or basis is so crude that its extension cannot be favored. It is justifiable, if at all, only when designed to pay the expenses of revenue agents engaged in enforcing the excise laws.

Since it is necessary to have agents in all parts of the Island, the yield of the present licenses is practically a net gain to the government. If, on the other hand, a graduated tax like the municipal license fees were adopted, assessment would be a more complicated matter. The present basis is probably preferable if the rates are not high.

Aside from the business licenses levied by municipalities and those of the Excise Law, the Insular government collects a number of minor license fees in connection with the special inspection or regulation of the business concerned. For example, the racing and boxing laws provide for licenses as well as other taxes. Dealers in narcotics are licensed. Foreign corporations operating in Porto Rico pay an annual fee of $25. Establishments selling foreign coffee must obtain a license. Banks pay annual licenses varying in amount from $50 to $250.

Professional licenses are issued by various Insular examining boards upon proof of qualification and payment of a fee or fees, but these are a source of revenue only to the extent of covering the expense of the boards.

In 1929 a proposal was submitted to the legislature to license establishments requiring inspection by the Department of Health; such as private hospitals, baths, theatres, restaurants, shops selling foods, and meat markets, but no action was taken in this direction. The tax is supposed to be justified by the necessity for inspection. In fact, the proposal deserves favorable consideration, provided the charges are proportional to the costs of inspection and in all cases very low. Even a low fee should be dispensed with in the case of dealers in food and establishments caring for the poor.

Special Road Taxes: Gasoline Tax and Motor Vehicle Licenses. In Porto Rico, as elsewhere, motor transportation has become the principal form of road traffic. The cost of road maintenance may be collected from those who chiefly benefit from these expenditures by taxing motor cars. It may be safely assumed that this is desirable, provided the rates upon the units of traffic are not too high.

The receipts of the so-called special road taxes in 1927-28 were as follows:

The gasoline tax	$620,000
Motor vehicle licenses	541,000
Total	$1,161,000

During this year the Insular government spent on road maintenance $1,368,000, leaving $200,000 to be borne by other revenue. In addition, during 1927-28 about $800,000 was spent in building main roads, and the municipalities spent between three and four hundred thousand dollars for the repair and construction of local highways. It is evident, therefore, that at present collections from special road taxes do not nearly equal road expenditures. In the continental United States the situation is similar, though gasoline taxes and motor vehicle licenses yield for the country at large more than the cost of road maintenance.[20]

In the year 1927-28, $582,000 was collected upon motor vehicle sales, and it may be argued by motor vehicle users that this tax also should be regarded as a source of revenue which is in whole or part justified by highway costs. It may be considered, on the contrary, that the motor vehicle sales

[20] Department of Agriculture, *Yearbook*, 1928, pp. 1097-98, 1100-01.

tax is a proper luxury tax which should be levied without regard to the benefits received by highway users. Obviously the luxury tax theory implies that the total tax burden which it may be desired to levy upon motor vehicles will be materially increased; that it may be expected to cover all highway costs and also a share of general government costs. A study of the rates of taxation indicates that this is probably not possible at the present time, though the motor vehicle licenses and gasoline tax alone might well cover all costs except construction.

Porto Rico taxes gasoline at the rate of four cents per gallon, with no exemption for the small quantities used for other purposes than motor fuel. Rates in American states vary from two to six cents. The Porto Rican tax, therefore, may be regarded as moderate. Motor vehicle license fees for passenger cars are 75 cents per horsepower per annum. Those for commercial vehicles range from $30 for small trucks and passenger conveyances not exceeding one ton in capacity to $100 for those of three-ton capacity, with an increment of $50 for every ton additional (Act 66 of 1928).

The main problem in fixing such fees is to obtain a progressive scale of charges proportional to the wear upon the roads which different types of vehicles cause. So far as road wear is proportional to fuel consumption, the gasoline tax meets this criterion, but the extra wear per ton caused by a heavy vehicle as compared with a light vehicle increases faster than the quantity of gasoline consumed, and can be adequately taxed only through a license. This fact is at present recognized in Porto Rico only by increasing rates upon heavy trucks by $50 per ton per annum. Heavy passenger vehicles enjoy relatively favorable rates, particularly those engaged as public carriers. The license becomes an almost negligible charge in the case of the big busses operated everywhere in the Island. However, it may safely be assumed that the passengers carried by public carrier vehicles get the benefit of the low taxes in the long run and some discrimination in favor of the vehicles carrying less well-to-do classes is not to be criticized even in a tax based primarily upon the cost of road maintenance. Increases in rates may be suggested principally for trucks and larger private cars.

The present tax burden upon the cheaper forms of motor vehicle traffic is a very small percentage of the cost of transportation, and this fact is sufficient to warrant the conclusion that higher rates would be justified both upon gasoline and in the form of vehicle licenses. In order to increase licenses equitably, progressive charges for high horsepower passenger vehicles and more marked progression in the rates for trucks may be recommended. Lifting the gasoline tax to six cents per gallon would be a reasonable way to make up the rest of the difference between maintenance costs and road tax revenue. These increases would probably yield an additional revenue of $400,000 per annum, and with a further increase in motor vehicle traffic, the total cost of road maintenance could probably be met by the road taxes.

Other Taxes. A number of smaller taxes not dealt with in the preceding sections remain, some of which warrant a brief mention. Among them are those upon amusements, including public spectacles, motion picture films, betting and races, and boxing matches. Much of the revenue in this group is derived from betting and races, the total being $262,000, including $50,000 which is set aside by law to be used as required for the expenses of the Racing Commission. The complicated system of taxes and licenses under which this revenue is collected need not be described in detail. Most of the collections come from pools, which resemble a lottery as a form of gambling, and represent a fairly heavy levy upon betting, amounting to more than 10 per cent of the sums paid by the public. The tax upon other forms of betting, of the *pari mutuel* order, took only about 2½ per cent of the money wagered, but various other taxes connected with racing yielded a large sum and in final analysis were a charge principally upon betting. During the fiscal year 1927-28 the amount of these wagers was as follows:[21]

In pools	$1,605,000
In "banks"	1,291,000

Taxes on betting and races are desirable, assuming that it is the policy of the country to allow the forms of gambling which make them productive. The rates are reasonably heavy, but probably could be still further advanced with no objectionable result.

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[21] From the Annual Report of the Racing Commission.

Several classes of documents are required to be recorded and moderate fees are imposed for this service. For example, all instruments affecting rights in real property must be recorded with the registrars of property. Many other documents are recorded with notaries whose duty it is to preserve such records. The conditional sales act requires such contracts to be recorded by municipal secretaries, or in the case of automobile sales by the Department of the Interior. Under the laws now in force, the minimum fees upon the documents in question are very moderate, while the progression in rates, if any, for those involving large sums is so gradual that the tax is never a heavy burden. For example, the minimum fee for a document recorded by a notary is 50 cents for the original and 25 cents for each authenticated copy. If the consideration is greater than $1,000, the rates are $1 and 50 cents, respectively, plus 25 cents and 10 cents for each $1,000 above the first thousand. The government bears the expense of the offices of the registrars of property, and consequently the tax upon the class of records presented in these offices is in part a payment for a service.

In addition to these documentary taxes there is a stamp tax of 25 cents upon each affidavit or declaration of authenticity issued by a notary. Also some Insular government offices collect small fees by attaching revenue stamps to papers prepared or filed with them as, for example, those recording the organization of a corporation.

Apparently the theory of documentary stamp taxes is that the taxpayer benefits from the recording and authentication of papers sufficiently to justify both a fee to cover the cost of the service and a small contribution toward the support of the government machinery in general.

Porto Rico imposes a so-called franchise tax upon the insurance business, based upon gross premiums, as is customary in the States. This naturally favors shifting the tax to the insured. Foreign life insurance companies pay 1½ per cent of premiums collected, plus 8 cents on every $100 of policies written. Domestic companies pay only the 8 cents. Companies engaged in other forms of insurance pay 3 per cent of the premium, except Porto Rican companies, which pay only one-half of 1 per cent. Heavy taxation of insurance in a manner which makes it easy for the companies to shift the burden to the insured is difficult to justify, but it is not peculiar to Porto Rico.

Franchises granted to Porto Rican public service enterprises as a rule provide for no tax unless the use of water is involved, and even charges for diverting water have been inconsiderable. A revision of the latter charges is now being considered. Three exceptional franchises, however, call for fairly heavy tax contributions; one of these is that of the San Juan motor bus lines, another is for a water-power development, and the third is that of the principal telephone company. The bus franchise contains a clause which permits the Public Service Commission to reduce or cancel the franchise tax if the company fails to earn a fair profit and the books of the company have not yet shown any profit. The water-power franchise is recent and has as yet paid nothing, but will soon be a source of revenue.[22] The telephone franchise provides that the government shall use free of charge not exceeding 5 per cent of the total number of telephone instruments installed by the company.

Porto Rico's policy as to the taxation of franchises is, therefore, not entirely consistent, but in a majority of cases it is reasonably sound. Any system designed to obtain large revenues from public utilities would place a burden upon those who are served by the companies which could not be justified. The few heavy taxes of this kind actually imposed were doubtless inspired by the mistaken idea that, under a system of rate regulation, their burden would be borne by the companies and not by the public. Moderate franchise taxes to cover the expenditure of the Public Service Commission are not open to objection.

A tax of 1 per cent is also collected upon contracts with the Insular or Municipal governments. This is clearly a charge which is always shifted to the respective governments and is, therefore, economically futile.

Final mention must be made of special taxes on tobacco manufactures which have been imposed not for revenue purposes but to discourage the introduction of machinery. Cigar manufacturers pay a special tax of $60 a year on every machine they use in the manufacture of cigars, and $400 a year on every cigarette machine. These taxes undoubtedly serve to prevent the expansion of the industry; indeed as the figures for the export of manufactured tobacco products shown on page 404 indicate, it tends to encourage the transfer of the industry to the mainland. Owing to the importance of encouraging manufacturing enterprise in the Island, we recommend the abolition of these special taxes.

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[22] See pages 363-65.

Excise Administration. Out of the total of $8,174,000 tax revenue considered in this chapter, $6,113,000 was collected under the supervision of the Bureau of Excise Taxes, while the remainder imposed by the Insular government was assessed by or collected under the control of various bureaus in connection with the regulation or inspection of tax paying activities. The Excise Bureau collects the general sales tax, the special sales taxes, taxes on public spectacles and films, Insular business licenses, the sugar production tax, the gasoline tax, the tobacco guarantee tax, and the coffee inspection tax.

The cost of the Excise Bureau and its share of general charges of the Department for the year 1927-28 has been figured as follows:

Salaries of permanent employees:		
Budget—central office	$16,738	
Budget—I. R. Agents	59,748	
Tobacco Guarantee Act	18,680	
Coffee Acts (For only part of a year under the 1928 Act)	3,339	
Gasoline Tax Act	2,000	
		$100,505
Salaries of temporary employees		12,343
Total salaries		$112,848
Expenses:		
General	$9,258	
Stamps	11,387	
Travel and horses of I. R. agents	14,108	
Tobacco inspection	11,823	

Coffee inspection	1,116	
Total expense		$47,692
Total direct charges		$160,540
Share of general expense:		
Office of the Treasurer	$3,115	
Division of Accounts and Disbursements	14,332	
Bureau of Property Attachments	331	
Collectors of Internal Revenue	39,054	
		56,832
Grand total		$217,372

The cost of collection of the $6,113,000 of excise taxes was, therefore, 3.6 per cent of the yield.

Costs of administration are increased unnecessarily by the existence of special funds for the tobacco guarantee inspection and coffee inspection. During the early part of 1929 the total annual salary list of the special fund organizations amounted to $49,476. The law allots this excessive sum for that special work and requires the Bureau to be organized in a manner conforming to the funds instead of as a unit to perform all its functions in the best and most economical manner.

The chief of the Bureau of Excise Taxes receives a salary of $3,300. He has three principal assistants, including an internal revenue agent at large, and approximately 30 other agents and eight clerical employees provided for by the budget. Agents' salaries vary from $1,450 to $1,980 per annum. During the early months of 1929 there were in addition 25 office workers and 22 agents paid from special funds. A large part of the special fund organization consists of temporary employees, named without civil service examination. It is significant of the weakness of the special fund plan of providing for government services, that a recent cut which the legislature made in the budget would, if enforced, have reduced the regular force and left the latter group intact.

At present the supervision of the work of the agents is somewhat deficient, the fault being attributable, in the opinion of the Chief of the Bureau, to failure to provide for enough higher paid men in his budget allowance. In fact, responsible positions in this, as in the other tax-assessing bureaus, carry low salaries. If the Bureau were not limited in its use of appropriations by the special fund laws and included only civil service employees, it would be able to pay adequate salaries, add several needed general inspectors and special investigators to its staff, and still reduce the cost of collecting the excise.

A number of central office records now requiring the time of many clerical employees could be eliminated by the use of statistical cards and sorting and tabulating machinery.

Excise taxes are collected by means of stamps affixed by the taxpayer to various documents as prescribed by the Department. The general sales tax, for example, is paid by affixing stamps to a monthly return of sales. These stamps are cut into two parts, one-half going to the Excise Bureau with the return and the other half remaining on a stub retained by the taxpayer. The object of this is to give the Excise Bureau a record of the payment of the tax and also to leave a record with the taxpayer for inspection by the internal revenue agent. Stamps for special sales taxes are affixed to two copies of a form known as the "invoice." The same form is used for the taxes upon sugar, admissions to public entertainments, and gasoline. The form is filled out by the agent, who sends a stamped copy to the Excise Bureau, leaves a stamped copy with the taxpayer, and retains an unstamped copy.

The present method of using stamps unnecessarily invites fraud in that either end of the stamp is accepted on returns sent to the Bureau.

In the case of cigars, cigarettes, and playing cards, the stamp is affixed to the package in the usual way. Tobacco stamps are affixed before the articles leave the factory warehouse. In the case of imports, the American manufacturer affixes them.

The procedure of enforcing collection of the 2 per cent sales tax is not uniform in all parts of the Island. In some localities an attempt is made to check all receipts of taxable commodities by listing incoming shipments from steamship and railway records. At San Juan no attempt is made to check the receipts of shipments for any of the 2,057 merchants who regularly make the monthly returns of sales, and reliance is placed solely upon inspection of the taxpayers' books. These merchants' returns show receipts of merchandise as well as the daily sales. The receipts which represent merchandise already taxed are supported by invoices which prove that the goods came from a merchant subject to the tax.

One form of evasion is the failure of the merchant to record all receipts and all cash sales in his general books. Another, in stores handling exempt goods as well as taxable, is to overstate the volume of exempt sales at the expense of the taxable sales. Although agents should generally be able to prevent serious evasion merely by inspecting books and inventories and making comparisons between stores with similar volumes of business, the only definite check possible is that derived from reliable information as to receipts of goods.

The present procedure for enforcing collection of the special high rate sales taxes differs radically from that for the enforcement of the 2 per cent tax, in that it depends largely upon the record of goods received at ports. Control by recording the receipt of articles is obviously an awkward manner of enforcing a tax which will not be paid until the articles are sold. Many merchants now voluntarily avoid regular inspection of their inventories by paying when they receive taxable goods. A change in the law to make the tax assessable at that time would simplify the procedure and reduce evasion.

Other problems under the present procedure are to insure that no shipments escape notice and that the goods are correctly described in shipping records. The Federal government could assist the Porto Rican authorities greatly by providing that the invoices, which shippers of goods to Porto Rico must in any case prepare, be made in duplicate and the carbon forwarded with the shipping papers to the Porto Rican port for the use of the Insular Finance Department.

As already pointed out, cash penalties for errors in tax returns are entirely inadequate. The penalty which it is practicable to enforce without proving that the taxpayer had had a fraudulent intent is only 10 per cent of the tax due. Fair and economical enforcement depends largely upon requiring taxpayers to declare the amount of the tax without waiting to discover whether they will be forced to pay it, and a negligible penalty is, therefore, a serious defect of the law.

There are a number of other interesting problems connected The Bureau of Excise Taxes has shown initiative in solving with enforcing the excise taxes which need not be described.

them and deserves credit for its success in preventing serious evasion.

General Comments. The excise and most of the miscellaneous taxes are typical of forms of taxation which may be very objectionable and which, with the exception of a few like those upon liquor, tobacco, and gasoline, are not in good repute. Both business men and consumers object to sales taxes. Many discriminatory special business taxes are likely to be shifted and, therefore, are essentially similar to sales taxes. Tax burdens proportional to gross sales of exporting business are likely to reduce a country's income and harm all classes.

It is surprising, therefore, to find in Porto Rico a total of about eight million dollars of revenue derived from excise and other taxes mostly upon gross turnover, which fall on consumption or production, and yet in the main have no very objectionable results. The explanation is found in the fact that the subjects for taxation have been chosen with discrimination. The chief guide which Porto Rico has followed has been the experience of the Federal and state governments, and when it has departed from American traditions there has usually been a sound reason for it.

Among consumption taxes, there is only one radical departure from American precedents, namely, the general sales tax, and a justification for this tax may be found in the fact that it falls very lightly upon the masses of Porto Rico's population and rests mainly upon the expenditure of the relatively well-to-do. It is not strictly a "general" sales tax and can be modified to avoid some incidental undesirable burdens which it now imposes upon production.

Porto Rico's special sales taxes include a number of unsuccessful and undesirable items, but nearly all of the revenue is derived from tobacco and automobiles and these are suitable subjects for high-rate taxation. Reform of the present sales tax system would, therefore, not mean a great loss to the government. The most popular form of gambling that is permitted by law is taxed fairly heavily.

The sugar production tax is the principal special business tax in the Island. It represents a form of taxation which is generally condemned as tending to lower the general prosperity of a country, but, under existing conditions, it apparently has not reduced sugar production appreciably and, therefore, is probably not harmful. On the other hand, it yields a large revenue.

On the whole, Porto Rico's special business taxes are remarkable for being moderate. Business licenses are to be criticized principally because the basis of the taxes is a very crude estimate of ability to pay, but in nearly all instances the charges are low. When the condition of the finances permits, municipal licenses ought to be abolished. Other charges upon business include an undesirably heavy burden upon insurance.

Special road taxes, the gasoline tax, and motor vehicle licenses are open to criticism only because they do not yield a greater revenue. Porto Rico's condition justifies as high a rate on gasoline as that in any state, and the maximum rate in the States is, therefore, to be recommended. An increase of license fees on heavy vehicles is also desirable.

The general impression gained from a study of Porto Rico's excise and miscellaneous taxes is that they reveal many faults of detail, including administration, but that a radical revision of the entire system is not called for. A justifiable criticism of tax policy in the past is that the laws have been changed too frequently and unnecessarily. As a rule, stability of the tax system is a virtue, provided that taxes are not unnecessarily harmful, and taxes which have worked well under conditions peculiar to the Island should not be discarded or changed without good reason.

CHAPTER VIII

TAX APPEALS

Normally the procedure for hearing tax appeals begins with the reference of disputes to a higher officer in the bureau which assesses the tax. From the bureau an appeal may be taken to a superior officer of the department or directly to a special appeal board. Finally, appeals may be carried to the courts.

The tax appeal procedure of Porto Rico may be criticized for its failure to provide adequately for adjusting complaints of protesting taxpayers in the tax assessing bureaus directly concerned. The Income Tax Bureau offers in explanation of its failure to furnish facilities for this, that it has no rooms where taxpayers and government representatives can meet. Otherwise its organization would permit hearing appeals within the Bureau. In the Property Tax Bureau, however, the absence of adequate central supervision of the work of the assessors prevents the development of an effective procedure.

One important function of the Treasurer is to hear taxpayers' complaints and so far as possible secure their settlement. If provisions existed for first hearing cases in the bureaus concerned and the Board charged with hearing tax appeals performed its duty, it may be questioned whether tax cases should regularly engage the attention of the Treasurer. That official's first duty should be to see that an adequate procedure exists for the settlement of disputes. He can personally attend to very few of them.

I. BOARD OF TAX APPEALS

The tax appeal board of Porto Rico is called the Board of Review and Equalization. It was originally created to revise assessments of real and personal property and to pass upon taxpayers' objections to property tax assessments. Subsequently, appeals from income tax assessments were referred to it. It has no jurisdiction in case of other taxes.

Seven regular members and two alternates compose the Board. These include the Treasurer, four persons appointed by the Governor with the consent of the Senate, and four persons elected, two of whom are regular members and two are alternates. Three members constitute a quorum. Two of the persons appointed by the Governor shall be agriculturalists (Laws of 1928, Act 46, p. 314). Until 1923 this Board was composed of the Treasurer, the Secretary,[1] and the Commissioner of the Interior, ex-officio, and two persons appointed by the Governor, with the consent of the Executive Council before the year 1917 and of the Senate after 1917 (Section 308, Political Code). Membership has always been representative of the various groups of taxpayers, particularly of agricultural landowners.

The body has played a very important part in tax administration. Its functions as an appeal board are in themselves of the greatest importance, and in the field of property taxation it has a dominant part in fixing the limits of values per acre for various classes of land. Within recent years the Board has not attempted to prescribe general rules for valuations, but its decisions each year run into the thousands and have defined maximum values with considerable definiteness. To the extent that tax administration is a problem of dealing with special cases involving either the property tax or the income tax, the Board is the directing force or brains of the administration.

Since 1923 the Board has had the following staff:

Chief of Bureau and Secretary	$4,000
Assistant Chief and Expert Accountant	3,500
Inspector	2,500
Inspector	2,500
Stenographer and Translator	1,800
Typists (2 at $700)	1,400
Messenger	700
	$16,400

Additional inspectors and clerks are often assigned to the Board by the Department. The staff spends less time on property tax cases than on income tax cases. Meetings of the Board are not open to the public.

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[1] A post under the Foraker Act; the Executive Secretary under the present Organic Act.

Property Tax Functions. The Board does not function as a board of equalization, as this term is understood in the United States. Assessments are dealt with individually and not by totals for taxation districts. Since all assessing is in the hands of the Department of Finance, general adjustments applicable to all values of a particular part of the Island are presumed to be unnecessary.

When general revisions are made, the Board may try to go over all of the assessments, whether appealed or not, before they are put into effect, but in the most recent general revisions of a number of the municipalities it did not attempt to do this.

During the fiscal year 1927-28, the Board held 105 meetings, of which 59 were devoted to property tax cases. One thousand three hundred and sixty-four cases were decided. This means an average of 23 cases per meeting. The average attendance of members was about five, the average length of each meeting was perhaps three hours, and therefore the average time devoted to each case was about eight minutes, making no allowance for interruptions and general business. The Board does not often deal with cases through sub-committees, nor do its members devote appreciable time to cases in intervals between meetings.

Of the appeals considered, about 10 per cent were decided without hearing the petitioner for a revision, but in all cases the appellant was invited to attend. In a large number of instances, paid attorneys or both property owners and attorneys were heard.

In all cases involving property tax appeals the Department of Finance is asked to report upon the facts, and the Department thereupon sends the file with the usual supporting data, that is, primarily the assessment blank, perhaps with supplementary notes by the assessor to justify his figures and usually with brief comments by the Chief of the Bureau of Property Taxes. The Bureau of Property Taxes receives a copy of a form (No. 139) upon which the taxpayer indicates his objection to the assessment, and if this paper explains the taxpayer's position adequately, the Bureau has a chance to prepare an answer. Ordinarily, however, the assessor does not prepare the answer.

The staff of the Board studies the data thus submitted and prepares a brief of each case, but does not ever visit the properties.

It is rarely considered necessary for the Bureau of Property Taxes to be represented when cases are heard. Having obtained the file, the Board takes full charge and hears only the taxpayer. In a few cases, mayors or their attorneys appear to defend an assessment.

In about 80 per cent of the property tax cases, the Board has made reductions. During 1927-28 property tax cases were heard from all but four of the 77 municipalities, reductions were made in 70 municipalities, and none was made in three. Lowering of assessments of individually owned property that year amounted to 21 per cent of the total value assessed, while corporation assessments were lowered only 3 per cent.

A high percentage of the revised assessments of properties of very large holders go to the Board. The average value of all properties reviewed by the Board in 1927-28 was about $48,000, while the average value of all properties on the tax rolls was about $1,970. Of all new assessments filed last year, about one in twenty was revised by the Board.

The Board's methods of arriving at property values are not well defined by rules. At the time of the 1916-18 general revision, it passed upon the instructions to guide assessors in classifying property and the maximum and minimum values of the classes. The Board has also fixed by order the method of assessing sugar factories, and has passed upon other so-called "tariffs" used as a guide in assessing various classes of property. But all important general tariffs are now out of date, as has been explained elsewhere. The Board does not keep files of data beyond those pertaining to cases handled, nor does it have available detailed maps.

As a rule, values of neighboring properties are not recorded in the file so as to be considered when a case is heard.

The Board's statutory authority in dealing with property tax cases does not extend beyond fixing correct market values so far as they can be determined from the laws, but in practice the Board has in a very few instances reduced assessments because of financial distress of the taxpayers concerned. An important instance illustrating this occurred after the hurricane of 1928, when an order was issued by the Board lowering assessments upon coffee land for the following fiscal year to one dollar an acre. A similar but smaller reduction had been granted following a storm two years before. Two large gas producing utilities have had their assessments lowered, one because it has earned no profits, and the other because its profits have been low.

The actual results accomplished by the Board have been disappointing, largely in:

1. Its failure to equalize assessments.

2. Its practice of lowering the assessments of nearly all taxpayers who appear before it

3. Its action in granting reductions which were evidently without justification.

In 1916 when the Board took upon itself the difficult task of fixing typical maximum and minimum values for various classes of land, it devised what was at least a crude scale for measuring and comparing those values. The utter absence of similar measures for actual values today suggests lack of initiative.

The Board's practice of reducing nearly all assessments which come before it, implies either a degree of inefficiency on the part of the tax assessors, which it is not easy to credit, or else a standing disposition to meet the taxpayers' wishes. Under the present system the assessor is forewarned that an appeal will be made, and, therefore, has a motive to under-assess properties in order to avoid disputes and is the less likely to make an over-assessment. The assessments which are regularly reduced include those made by a number of highly skilled and reliable men.

Check appraisals were made of six rural properties chosen at random in municipalities that had recently been reassessed and from among those assessments which were revised by the Board. The values given in the check appraisals were supposed to represent full fair market value of the properties.

The check appraisers were instructed to estimate values very conservatively. Three of the six properties were appraised independently by two men. The results showed one of the two appraisers consistently a little higher than the other. The Board had reduced the values of all six properties. In four cases out of the six, the appraisers fixed values above those of the original Department assessments which had been taken to the Board by appeal. In these four cases the Board made reductions varying from 20 to 50 per cent. As to one property which was corporation owned cane land, both appraisers agreed on a value roughly double the Department's figure. The Board reduced that Department assessment by about 20 per cent. In two cases the appraisals showed values below those fixed by the Department. In one of these the appraiser fixed the value of a small tract of land at $2,150, while the Board had reduced a Department assessment from $2,910 to $1,455. In the remaining case, land in pasture, the Board had made very little reduction and the check appraisers agreed with its decision to the extend of fixing values below that of the Department and one appraiser set a value lower than that set by the Board.

Other appraisals of similar land the assessment of which had not been appealed, did not indicate that values in four of the six cases studied, which went to the Board, were abnormally high in relation to the level recognized in the general revisions of the municipalities concerned.

The principal evidence of unjustifiable reductions of values by the Board involves consideration again of the levels adhered to under Treasury regulations for fruit and cane land and decisions of the Board with respect to land of those classes. Study of the files of cases before the Board showed that values of such land have been held down consistently in repeated decisions. For example, a recent appeal of the Santa Isabel Sugar Company brought before the Board for consideration some of the most valuable land of the Island and resulted in a small further reduction in assessments, though the values appealed from were about on a par with the present average in the municipalities in question, $295 for the part of the land recorded as under cane.

The features of the present appeal procedure which are believed to be at fault are the following:

1. Assigning the hearing of tax appeals to a body selected on a political party basis
2. Assigning this function to taxpayers
3. Loading an enormous amount of work in hearing appeals on a body which can give only very brief attention to each case
4. Following a procedure which places the Bureau of Property Taxes at a great disadvantage in submitting its side of a case.

The calibre and character of the men appointed and elected to the Board of Review and Equalization indicates due recognition of the need for members of more than average ability. It is obvious, however, that election is not a practical means of selecting persons who are to have expert knowledge of property values and are to apply the knowledge without fear or favor to obtain one hundred per cent assessments. The objection to election of the members of the Board applies also to appointments for four-year terms with senatorial confirmation. A method of selection is needed which will, so far as is possible, free the appointees from obligations to any special group.

The use of taxpayers to judge taxpayers' cases is supposed to be justified by the expert knowledge thus made available. Calling on representative groups of taxpayers for advice only may, in fact, be desirable. For such a body to act as a judge of assessment appeals, however, is another matter. It would hardly be possible to get together a group of men subject to more pressure for favors. The membership itself is directly representative of many private interests whose cases are heard. Although members may be credited with the sincerest desire to equalize the tax burden, each taxpayer member is also unavoidably thinking in terms of the individual taxpayer's interest and of his own interest. His class point of view unavoidably biases him in favor of under-assessment and reductions.

The work entrusted to the Board is too heavy, since the only possible way to dispose of an appeal quickly is to grant a reduction of assessment. An excessive volume of work makes reductions inevitable.

Hearing the taxpayer orally, in person or by attorney, and failure to hear the assessors denies the first principles of judicial procedure. The Bureau of Property Taxes has no chief assessor to handle the defense of the assessors' valuations. To obtain fair assessments, however, there must be such an office, and its holder must have every opportunity to combat the interested arguments of taxpayers.

Any effort to remedy the present evils must begin by correcting an impression shared by many that taxpayers should have a right to appeal directly to a board of taxpayers. The principle which should be advanced is that cases involving tax appeals require the same disinterested weighing of facts as in a higher court of law. In deciding what the composition of the Board should be, it should be remembered that there are serious objections to almost any part-time body. Practicing lawyers or accountants, for example, would be only a little less free from outside pressure than the present members.

A full-time body to hear both property tax and income tax appeals, whose members are appointed for indeterminate terms, would afford a simple and practical solution of this problem. It may be estimated conservatively that the members of the Board should devote not less than three full days a week to property tax cases.

Many improvements in procedure might be suggested. The Board might prescribe indispensable evidence to be submitted in presenting every case, including facts as to values of neighboring properties and all available maps. A rough sketch of the district might be required. Statistics of production should be obtained where practicable, especially for staple crops like cane. Soil analyses might be required. A Board devoting its attention seriously to the problem of placing assessments on a scientific basis would, as a matter of course, revolutionize the present appeal procedure.

Income Tax Functions. During 1827-28 the Board of Review and Equalization held 46 meetings devoted to income tax appeals and decided 639 cases. This means an average of approximately 14 cases per meeting, or roughly 13 minutes to a case.

It is not customary for the Income Tax Bureau to be heard in defense of its assessments. The Bureau is merely asked for the return and files of the cases, and sometimes gives additional assistance.

Appeals are not ordinarily first taken up in a hearing in the Bureau. Cases may go to the Board without points at issue between the taxpayers and the Bureau having been made fully clear. Papers with respect to an appeal are routed directly to the Board, and some of them may never be seen by the Bureau.

The records of the Board are not so kept as invariably to indicate the reasons for the revisions made, and no abstract of opinions is, or could be, prepared from its files.

In about 80 per cent of the income tax cases, the Board has made reductions. The percentages of the tax assessment cancelled in 1927-28 were as follows:

	Per cent
Corporations	33
Partnerships	47
Individuals	32

The average tax of the assessments appealed to the Board was as follows:

	Number of Cases	Average Assessment Appealed
Corporations	97	$10,514
Partnerships	125	1,380
Individuals	417	377

The staff of the Board is supposed to study each case in full and to prepare a comprehensive brief of the data. The regular staff is inadequate to perform such a duty, but it is assisted somewhat by detailing men from the Treasury Department.

On March 30, 1929, there were 988 income tax cases pending. Of the cases heard at the last meeting in March, 1929, the case pending longest had been appealed on October 13, 1925, and the most recent case was appealed April 26, 1928. The date of the income to which the appealed assessments pertain is, in nearly all instances, three to six or more years before the date of the decision.

Notable examples of the failure of the Board to reach or act upon the facts in important income tax cases before it were uncovered by the Auditor of Porto Rico during an investigation of income tax assessments. In some instances the investigation showed very elementary and obvious principles of income tax procedure ignored by the Board to the great loss of the government.

The most serious grounds for criticism of the present appeal organization for income cases are, first, that a taxpayers' board is neither impartial nor expert, and, second, that all the cases are not investigated adequately. It is obvious that the members of a taxpayers' board will not possess the knowledge of accountancy and law required to deal with difficult income tax problems. Apparently, however, the serious results of this handicap are not fully recognized by Porto Rico's lawmakers. Inadequate investigation of cases is unavoidable as long as the volume of work is as excessive and the time given to their duties by Board members is as limited as they are at present.

In substance the existing system of handling income tax appeals represents an effort to review them by duplicating staff. Cases arise from decisions by the Income Tax Bureau on the basis of the investigations of its own staff, and are settled after a second investigation by a second staff under the independent control of the Board of Review and Equalization. Sometimes the second investigation uncovers obvious errors of the Bureau. In other cases, the independent staff differs with the Bureau on points of accounting or law. If the second staff gives in to the taxpayer, its view governs. If it agrees with the Bureau and can defend its view before the non-expert board which employs it, its view also governs. The second staff, therefore, has a very important function. Presumably, cases of obvious error by the Bureau could be settled in the Bureau with no delay or difficulty, so the important function of the second staff is to settle difficult cases and to obtain the Board's approval of its opinion.

The second staff is paid at a low rate and can hardly be more expert than the staff of the Income Tax Bureau. In reviewing cases, it works under the handicap of lack of prior knowledge of the facts. It carries a very heavy volume of work, and can lighten its labors by giving in to taxpayers. The Board carries the responsibility for all decisions, and is not opposed to reductions if they seem plausible. Since the Board is not expert and its members neither study the details of tax cases fully, nor hear the representatives of the Bureau, the present procedure is difficult to defend.

The important position which the Board's staff now occupies is due to the failure of a plan of organization which was in operation before 1923, when the Board was not assisted by any staff. It may be objected, therefore, that to reduce the functions of the staff would restore the evils existing before 1923. The underlying weakness in the situation before 1923 was the inability of the Board to give an independent review of cases, and the remedy which suggests itself after studying the results of the present procedure is to create an expert board, the members of which can personally devote enough time to each case to ascertain the facts. Neither before nor since 1923 have the members been able to give enough time to their duties, nor have they been sufficiently versed in problems of accounting and law to do their work successfully. No betterment of staff can repair these defects.

Suggestions as to improving procedure in income tax appeals follow those indicated in considering property tax appeals. A full time board of three, whose members are appointed for indefinite terms, is probably the most practical solution. Combining property tax and income tax cases in the hands of one board may not be desirable, but is probably unavoidable. Work on the two classes of cases would fill the docket of one board, even were appeals to be heard first in the Department before they could be taken to the board.

The proposed board would, of course, prescribe rules designed to limit its normal duties to answering questions of law as presented in individual cases with minutes to support its answers. The procedure of the United States Board of Income Tax Appeals would furnish a valuable model.

II. APPEALS TO THE COURTS

Taxpayers displeased with the decisions of the Board of Review and Equalization must pay the tax and then may carry their cases to the courts. Under the income tax law, the Department also may appeal to the courts against the Board's decisions, but it has not exercised its right in this regard. Cases which the Board is not competent to decide, namely, those falling outside the property and income tax laws, may be carried directly from the Department to the courts.

As a result of facts disclosed by the Auditor's Office, the people of Porto Rico are suing certain corporations and individuals to collect income taxes above those determined to be due by the Treasurer and the Board. It has been established by court decisions that the Auditor has the right to investigate income taxpayers' records, but it is not yet settled whether the people of Porto Rico can appeal to the courts in cases where the Board and Treasurer have agreed upon an assessment. The taxpayers' present defense against the Auditor is simply that the taxes had been fixed finally when assessed by the Board. These suits, supported by the opinion of the Auditor and Attorney General that the taxes in litigation are due, and prosecuted with the handicap of no support by the Department of Finance or the Board of Review and Equaization, are more than a little puzzling.

Taxpayers' cases in the courts against tax assessments have been very few except where income taxes are involved. Some 71 cases have arisen under the 1925 income tax law. In a number of these, however, the object was primarily to attack the validity of the law rather than to redetermine an assessment. Only two recent suits involving appraisals for property tax purposes have been brought by individuals, but a number of cases challenging the Department's interpretation of the law as to corporation property tax assessments have been taken into court. Cases under those tax laws which do not provide for an appeal to the Board of Review and Equalization have been confined principally, if not entirely, to suits attacking the statutes themselves rather than particular assessments.

During the past ten years efforts have been made to set aside nearly all of the new special tax laws, such as the general sales tax, the sugar tax, the tobacco guarantee tax, and the foreign coffee tax. Court decisions have established the legality of the sales taxes, the sugar excise tax, and the income tax. The tobacco guarantee tax and the foreign coffee tax are still in litigation; but they are relatively unimportant. The Department's interpretation of the property tax has been modified, the Treasurer having lost his principal or test case.

The most important litigation challenging the present tax laws is now ended, with the government sustained except in its method of assessing corporations for property tax purposes.

III. THE AUDITOR'S FUNCTION WITH RESPECT TO ASSESSMENTS AND TAX CLAIMS

The Organic Act contains a clause apparently granting broad powers upon the Auditor to settle all claims in favor of as well as against the government of Porto Rico. The point has accordingly been raised as to whether by virtue of the possession of this power the Auditor does not have the authority, if not indeed the obligation, finally to pass upon the assessment of taxes to be paid by taxpayers, and particularly the reduction of assessments or the granting of credits to taxpayers for taxes administratively held to have been improperly collected.

In seeking for means to set up a more rigid system of control over the assessment of the property tax, and particularly over the power of the tax administration in the office of the Treasurer or the Board of Review to reduce assessments, the suggestion has been made that the Auditor should more vigorously assert his authority as the officer having responsibility for the final settlement of claims for or against the government.

Any general attempt on the part of the Auditor to take to himself responsibility for the determination of the assessments to be levied against taxpayers would be unfortunate and, it is believed, contrary to the law as that law has been interpreted in the courts. Practically the same question has arisen in the United States in respect to the power of the Comptroller General of the United States and in the Philippines in respect to the power of the Auditor for those Islands to review and readjust the settlement of revenue claims of this character as made by the administrative authorities upon whom the duty of adjusting the claims has been fixed. In both the United States and in the Philippines, where the Comptroller General or the Auditor has sought to exercise these powers, he has failed to receive the support of the courts.

Apart from the legal proposition, such attempt on the part of the Auditor might give rise to an impossible situation from the administrative standpoint. Properly to exercise the authority of determining assessments the Auditor would have to have a technical staff competent to value property for assessment purposes; or, to state this in another way, he would have to have an assessment service that would more or less duplicate that existing in the Office of the Treasurer, and responsibility for assessments instead of residing in the office of Treasurer would really reside in the office of the Auditor.

While it is believed that it is neither legally warranted nor administratively desirable that the Auditor should exercise authority in respect to the determination of assessments, it is thought, however, that he should play a very important part in assuring himself that no malfeasance of office takes place in the office of the Treasurer or in the Board of Review in the handling of this important function of government. Both the authority and the duty should be specifically imposed upon him by law and preferably by an amendment of the Organic Act to audit or to reexamine any assessments which for any reason he has reason to believe may have been improperly made. His function, in respect to assessments, should be that of audit rather than settlement of claims. In the discharge of the powers thus conferred upon him, he should from time to time make what are known as "test audits" and should also examine into specific assessments regarding the propriety of which any doubt exists. The results of such examinations should be included in his annual report or in special reports to the Governor and the Porto Rican legislature. The possession of this power by the Auditor and its proper exercise would constitute a strong check upon the tax assessment authorities without interfering in any way with such authorities in performing their duties or bringing about any distribution of responsibility between such authorities and the Auditor's Office.

As a matter of practical procedure it may be recommended that the Finance Department be required to inform the Auditor currently of all reductions in tax assessments and of credits allowed to taxpayers. It might be argued with some reason, furthermore, that a ruling of the Finance Department or a decision in a tax case, if believed by the Auditor to be contrary to law, and if not overruled by the Governor, be referred to the Insular courts in actions maintained by the Auditor through the Attorney General's Office and against either taxpayers or administrative officials.

IV. INJUNCTIONS TO STOP COLLECTIONS; PAYMENT UNDER PROTEST; REFUNDS

At one time, particularly during a few years before 1925, the United States District Court for Porto Rico issued many injunctions restraining the collection of taxes. On more than one occasion it was held by the Circuit Court of the United States that the laws of Porto Rico did not provide an adequate remedy for the taxpayer other than injunction to prevent the collection of unjust or illegal taxes. The laws in question were amended, but this did not remove the defect until April, 1927. Representatives of Porto Rico appealed to Congress for legislation similar to the Federal statute which prohibits injunctions to restrain tax collections on the mainland, and on March 4, 1927, Congress amended the Organic Act in the manner desired. Today a taxpayer who carries a case to the courts must pay under protest and within one year sue the Treasurer to recover the money.

When this amendment went into effect on March 4, 1927, a few injunction cases were pending and the United States Supreme Court decided that these injunctions were subject to the act of Congress and invalid and that the cases must be dismissed. The implication was that the tax must be paid under protest and suit initiated to recover the money. Congress subsequently, on April 23, 1928, passed an act for the "relief of certain taxpayers of Porto Rico," which required Porto Rico to sue to collect the money involved in these few cases, making them, virtually, an exception to the new rule concerning payment under protest. Perhaps this action of Congress was based upon the conviction that Porto Rico could not win the principal suits. Perhaps, also, the large sums they involved led Congress to attach importance to the argument mentioned in the next succeeding paragraph. Otherwise, the reason for an exception in favor of the one special group of cases is not clear.

Taxpayers have argued against the requirement that taxes be paid under protest and in favor of the injunction as a remedy, on the ground that the government of Porto Rico and the municipalities could not find the money to pay refunds. For some time this argument was answered by providing a special fund in which all payments of taxes under protest were deposited and held till the cases were settled. On April 19, 1927, however, the Porto Rico law was amended so that taxes paid under protest after that date should be expendable by the Insular or municipal governments like other revenue. The taxpayers' objection, therefore, again applies. This was argued before Congress when the relief bill was discussed. It was not contended, however, and could not be argued that Porto Rico had ever failed to pay tax refunds promptly.

Nevertheless, Porto Rico would be in a stronger position and would be conceding no more than is proper if her laws were to provide a procedure guaranteeing speed in refunding taxes, and effective even if the cash in the Treasury should be insufficient to repay them immediately out of revenue. Since the Organic Act already defines the order in which funds in the Treasury shall be used, an Insular law to insure refunds when cash is low could only provide for borrowing upon Insular notes to be repaid within a year.

V. GENERAL VIEW OF THE PROBLEM

The two interests primarily concerned in tax appeal procedure have points of view which are not entirely or principally conflicting. Both the government and taxpayers desire a speedy and practical method of disposing of disputes. As judged from this common standpoint, the present procedure is bad because it does not provide adequately for the settlement of cases by the higher officers of the assessing bureaus, and, because the handling of cases before the Board of Review and Equalization has been very slow.

Small taxpayers may justly complain that the present system favors the wealthy. It is impossible to devise laws or legal practices that do not work more smoothly for the rich than for the poor, but Porto Rico's tax procedure is particularly subject to criticism on this score. The lack of a systematic procedure for hearings in the assessing bureaus prejudices the interests of the small taxpayer more than it does those of the big taxpayer. The fact that nearly all assessments which go to the Board are reduced, means that the rich who regularly carry their cases to the Board enjoy a lower average ratio of assessed value to true value on that account.

The Government's special ground for objection to the present system of appeals is the existence of a board of review composed of large taxpayers, which, it can be fairly claimed, has not adequately defended the interests of the Government against claims for tax reductions. The Government's interests extend also to the routine of auditing—the Auditor's duties as to revenue should be enlarged.

The Auditor's powers can be changed only by amending the Organic Act. Other desirable reforms in tax appeal procedure should be made by the legislature and by administrative officials. Any reform affecting the constitution of the Board of Revision and Equalization will be strenuously opposed as long as the revision of property tax assessments automatically increases the tax burden. This and other assessment reforms can hope to receive popular support only after the separation of the tax-increase and the tax-equalization issues.

CHAPTER IX

DISTRIBUTION OF THE PUBLIC REVENUE

In Porto Rico the general property tax has been regarded as primarily for the support of local government, as represented by the 77 municipalities into which the Island is divided.

I. ASSIGNMENTS OF THE GENERAL PROPERTY TAX

Soon after the present system of taxation was established in 1901, a policy was adopted of assigning the property tax to the municipalities except for one-tenth of 1 per cent retained by the Insular government to cover cost of collecting, and another tenth of 1 per cent to pay interest and amortization upon the early road bonds. The municipalities were allowed to levy up to 1 per cent, of which, if the whole 1 per cent were levied, .325 per cent was required to be deposited in the municipal school fund. Special authority was granted also for additional municipal levies to carry municipal bond issues, but typical acts before 1917 required a favorable vote of taxpayers in order thus to authorize a special tax for debt service.[1]

Within recent years several laws have been passed authorizing additional property taxes for Insular purposes, and the Insular share of the tax is now nearly one-third of the total. At the same time the municipalities have been freed from the former severe restrictions upon special levies to cover public improvements and debt service.

Owing to the existence of several special funds supported by property taxation, the present distribution of revenues from that source is very complicated. It is shown by the table on page 270.

Supplementing the provisions governing the distributions described by this table is one requiring 6 per cent of the municipal general property tax to be turned into an Insular sanitation fund.[2] It is difficult to explain why in municipalities of the first class Insular levies should be one-tenth of 1

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[1] See Act 4, Section 8, Laws of 1913.

[2] Present provision in the 1928 Municipal Law, Act 53, Sec. 7.

DISTRIBUTION OF PROPERTY TAXES, 1927-28

Levies	Rate Per Cent		Amount Levied 1927-28 [b]
	First Class Municipalities [a]	All Other Municipalities	
I. INSULAR	**0.75**	**0.65**	**$2,350,755**
Insular General Fund	0.20	0.10	478,573
Insular Bond Redemption Fund	0.10	0.10	341,174
Insular Special Bond Redemption Fund	0.05	0.05	170,587
Insular Special Additional Redemption Fund	0.10	0.10	341,174
University Fund	0.20	0.20	682,349
Development of Water Resources Fund	0.10	0.10	336,898
II. MUNICIPAL	**1.90** [c]	**2.000** [c]	**5,330,565**
Municipal General Fund	0.60	0.675	2,201,653
School Fund	0.30 [d]	0.325 [d]	1,069,083
Surcharge	1.00 [c]	1.00 [c]	2,059,829
TOTAL INSULAR AND MUNICIPAL	**2.65** [c]	**2.65** [c]	**7,681,320**

[a] First class municipalities are: San Juan, Ponce, Mayagüez, Arecibo, and Caguas.

[b] Figures from Auditor's *Report*, 1927-28, pp. 95-98. These are the amounts levied and are slightly greater than the amounts collected as recorded in other tables.

[c] These are the maximum rates permitted by law.

[d] These rates consist of a separate levy of one-tenth of one per cent plus one-quarter of the general municipal levy of eight-tenths or nine-tenths of one per cent, of which three-quarters is deposited in the general fund.

per cent more, and aggregate municipal levies for general and school uses should be one-tenth of 1 per cent less than in other municipalities. The provisions as to school taxes, which are uniform and cannot be reduced, are one of the most significant features of the law.

It will be noted that out of total municipal taxes of not over 1.9 per cent in municipalities of the first class or 2 per cent in other municipalities, 1 per cent is the so-called "surcharge." This may be levied only to pay interest and principal of debt, for the development of education or to construct permanent improvements. In practice, authority to levy the "surcharge" has been used almost solely for debt service.[3] Only one municipality levies the full 1 per cent, namely, San Juan. The authority is such a generous one that it is almost equivalent to abolishing all limitations upon levies for public improvements, inasmuch as 1 per cent is sufficient to pay the principal and interest upon municipal loans, assuming 5 per cent interest and a 25-year term, to a total of $48,000,000, or 14 per cent of assessed value of all municipal property. The present debt limit is 5 per cent except in case of San Juan and Ponce, which are allowed 10 per cent.

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[3] The Auditor's *Report*, 1927-28, p. 98, shows $233,489.69 of special municipal levies against $1,826,338.81 of municipal loan levies.

Under the present law any revision in assessments must increase property taxes, and a general revision is now feared and opposed for that reason. Since 1905 the yield of taxes under the same rate per cent has increased in response to rising assessments by 278 per cent, or, in other words, well toward fourfold.

INFLUENCE OF RISING ASSESSMENTS ON PROPERTY TAXES
(In thousands of dollars)

Year	Assessed Value of All Taxable Property	Yield of a One Per Cent Tax	.675 Per Cent for General Municipal Use	.325 Per Cent for Education
1905	90,253	903	610	293
1910	121,866	1,219	823	396
1918	243,931	2,439	1,646	792
1928	341,371	3,414	2,304	1,110

While municipal general and school revenues and Insular special fund revenues have augmented in response to rising property valuations rapidly enough to keep pace with their requirements, the Insular general fund has been forced to borrow to cover budget deficits and new taxes have been sought to meet its growing needs.

Recognizing that the great increase in assessed values following a general revision might unduly expand municipal revenues, the legislature at one time[4] ordered that "All revenues collected from said regular general property tax in excess of the amount received by the respective municipalities and school boards . . . during the fiscal year ended June 30, 1917, shall be withheld by the Treasurer for the benefit and use of the Insular government;" but the law of 1919 repealed this provision.

II. OTHER REVENUE ASSIGNMENTS

General property tax collections are the only revenue items specifically assigned to both the Insular and municipal governments; but these share concurrently the right to tax sales and to impose licenses upon business. There are a number of special fund assignments of revenue, however, aside from those listed in the table showing the general property tax distribution, most of which merely cloud the picture of government operations as exhibited by the budget and the Treasurer's and Auditor's accounts. Few are significant as constituting a distinct basis of financing important services.

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[4] Act 70, Laws of 1916.

Among the more important special funds are those for the support of the university, and a number derived from the proceeds of bond sales for the construction of schoolhouses, roads and bridges, irrigation and hydroelectric works, and other public improvements. Each municipality has a special school fund. Part of the Insular and municipal debt service is covered from similar sources.

A number of minor agencies of the Insular government enjoy the privilege of paying their expenses out of their own revenue after depositing it in special funds. Among these should be mentioned particularly the Insular Racing Commission, which collects a large sum of money. What it does not itself use, it distributes to aid health work and school lunches and to assist private charities. The arrangement suggests that the money is regarded as conscience money and not public revenue.

III. DIVISION OF REVENUE BETWEEN INSULAR AND MUNICIPAL GOVERNMENTS AND SCHOOL SYSTEM

Out of a total public revenue in 1927-28 of $23,712,000, the Insular government received $16,629,000, or 70 per cent, and the 77 municipal governments received $7,083,000, or 30 per cent. Of the total taxes, amounting to $17,922,000, the Insular share was $12,415,000, or 69 per cent, or $8.60 per capita, while the municipal share was 31 per cent, or $3.80 per capita.

These figures are remarkable as compared with similar figures for the continental United States in that they show local government revenue in Porto Rico to be an unusually low percentage of total government revenue. In order not to be misleading, however, it is necessary to consider separately the support of common schools. In Porto Rico 77 per cent of the total school expenditure is paid from Insular funds, while our state governments pay only about 14 per cent.[5] Figures for the United States which may be compared with those for Porto Rico relate to the distribution of tax revenue only, and not of public utility earnings and other non-tax revenue. Tax collections on the mainland represent the greater part of the total revenue which from its nature is available to be assigned to either state or local uses, and are fairly comparable, therefore, with the Porto Rican total of taxes plus Federal grants. In Porto Rico in 1927-28 the revenue from taxes and Federal grants was divided between Insular and municipal governments as follows: Insular government, $14,791,000; municipal governments, $5,507,000. With school revenue considered as a separate group, the division was as follows:

Division of Taxes and Federal Grants, Porto Rico

Item	Amount (In thousands)	*Percentage Distribution*	Per Capita
Insular share excluding school revenue..	$10,691	*53*	$7.40
Municipal share excluding school revenue	4,307	*21*	2.95
School revenue	5,300	*26*	3.65
Total	$20,298	*100*	$14.00

Comparable tax figures for continental United States are as follows:[6]

Division of State and Local Taxes, Continental United States, 1926

Item	Amount (In millions)	*Percentage Distribution*	Per Capita
State share excluding school revenue....	$1,009	*19*	$8.60
Local share excluding school revenue....	2,680	*50*	22.90
School revenue	1,700	*31*	14.50
Total	$5,389	*100*	$46.00

In Porto Rico local tax revenue is less than half that from Insular taxes plus Federal grants, while in the continental United States it is two and a half times state tax revenue. This difference is explained, in part, by the relatively small size of Porto Rico towns as compared with urban centers on the mainland. It is obvious, however, that the difference is too great to be explained principally in that manner. Porto Rican local tax revenue is lower even than the county tax revenues of many of our poorest states.[7]

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[5] National Industrial Conference Board, *Cost of Government in the United States*, 1926-27, p. 24.

[6] *Ibid.*, pp. 24, 60.

Insular taxes plus Federal grants per capita, excluding school support, are not very much less than state taxes per capita on the mainland.

IV. MUNICIPAL REVENUE

The description of the assignments of the general property tax and other revenues have already furnished a fairly adequate picture of municipal revenue. The following table shows in summary form the sources and the increases in collections during the past two decades:

SOURCES OF MUNICIPAL REVENUE
(Figures in thousands of dollars)

Source	1927-28	1917-18	1907-08
Property tax	5,110	1,850	1,244
Sales Taxes—principally on the sale of fresh meat	98	107	[a]
Industrial and commercial licenses	269	201	163
Miscellaneous taxes and permits	30	11	14
Total taxes	5,507	2,169	1,421
Miscellaneous nontax revenue	570	89	59
Public utility earnings	1,006	331	270
Total revenue	7,083	2,589	1,750

[a] None reported in the statistics. Probably included in the figure of $270,000 because associated with the operation of municipal slaughterhouses.

After finding Porto Rico's local revenue so small as compared with that of the continental United States, it is surprising that it is nevertheless about three times as great as it was in 1917-18. It is surprising also to note that about one-third of this revenue, excluding that from public utilities, is derived from "surcharge" property tax levies. The figures on an earlier page show that in 1927-28 the property tax levy was divided as follows:

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[7] United States Department of Commerce, *Wealth, Public Debt and Taxation*, 1922, Taxes Collected, pp. 16, 17.

Municipal general fund	$2,201,653
School fund	1,069,083
"Surcharge"	2,059,829
Total	$5,330,565

In 1917-18 municipal debts were very small and the "surcharge" was of negligible importance, yielding only a little above one hundred thousand dollars.

The present theory of municipal taxation assumes that the wealth of each municipality shall carry the charges for municipal services in that community. This theory is easily understood and superficially seems so just that the grave inequalities of the present arrangement must be indicated very clearly in order to have a picture of its practical results.

Per capita assessed value of taxable property in Porto Rican municipalities varies from over $800 down to $60. The one per cent tax for general and school purposes in the richest municipality yields eight dollars for each inhabitant and only sixty cents for each inhabitant in the poorest community. Revenue from other sources than the general property tax tends to vary with wealth in about the same proportions as the latter tax. These variations are brought out by the following table:

COMPARISON OF PER CAPITA MUNICIPAL REVENUE IN RICH AND POOR AREAS
(Dollars per capita)

Item	Yield of a 1 Per Cent Property Tax	Total Revenue [a]
Richer municipalities:		
San Juan	8.01	21.55
Santa Isabel	5.91	8.90
Guanica	5.47	6.07
Salinas	4.92	7.02
Rio Piedras	4.15	6.61
Ponce	3.84	10.88
Guayama	3.41	7.47
Poorer municipalities:		
Villalba	0.77	1.32
Rincon	0.76	.90
Baranquitas	0.75	1.77
Aguas Buenas	0.74	1.57
Orocovis	0.73	1.04
Naranjito	0.63	.94
Moca	0.60	1.11

[a] Property tax levy, 1927-28, as reported by the Auditor, plus revenue receipts, 1927-28, from sources other than the property tax as shown in the Auditor's book of municipal statistics.

Even after excluding municipalities with a considerable urban population there are many relatively rich communities along the coast, while in the mountains municipalities are generally poor. Fertile sugar lands and sugar mills account for the high taxable wealth of five of the seven richer municipalities listed and of a considerable part of the wealth of a sixth.

In so far as municipal government is a factor in community welfare, the present unequal financial support of its activities condemns much of the mountain area and some other parts of the Island to a stunted development. If the public services supported out of the yield of the municipal property tax are of no importance to the Island as a whole, this inequality can be ignored, but if those services, which are largely confined to essentials such as the care of sick, education, and maintenance of local roads, are vital to all the people of Porto Rico, then the present financial system tends to aggravate existing social evils. Furthermore, the inequality must become the more objectionable as municipal government becomes more useful and important in serving the people.

The inability of poorer municipalities to support essential functions accounts, in part, for the extent to which such services are supported by the Insular government rather than by the local authorities. The municipalities, however, retain great responsibilities particularly for education and public health which are matters of deep concern for the whole Island.

V. RURAL AND URBAN REVENUE

Porto Rican municipalities resemble New England towns in embracing all the territory of the Island, urban and rural alike. San Juan is the only municipality that is wholly urban. The population of Cataño and of Ponce is more than half urban. The wealth of Aguadilla, Caguas, Cataño, Mayagüez, Ponce, and Río Piedras is largely urban. On the other hand, the wealth and population of about half of the 77 municipalities is overwhelmingly rural, the towns being very small.

With so few exceptions that they need scarcely be considered, all property taxes have been levied on urban and rural areas alike. In the continental United States it is customary for urban areas to be taxed for their special city requirements and as a result taxes are generally higher in the town than in the country. This is justified by the special social and economic advantages enjoyed by city dwellers and business firms. Services for which extra urban taxes are paid, such as fire protection, street maintenance, garbage removal, and sewage disposal, specifically provide such benefits.

The extent to which the towns profit at the expense of the country in Porto Rico may be measured roughly by comparing the ratio of urban to rural expenditures and taxes. To do this, however, some rather arbitrary asumptions are necessary unless expenditures which are, or should be, of general benefit to both urban and rural communities are treated separately, and no attempt is made to divide them. Expenses for education and health, the important groups which should benefit both urban and rural populations, are general charges which, it might be contended, should be paid for equally by all, without regard to whether the taxpayer lives in town or in the country. In 1927-28 all municipalities spent $3,971,000 for current operations, excluding debt service, public utilities, and capital outlay. Of this expenditure the items which should be of general benefit were as follows:

General government and miscellaneous	$833,000
Jails	48,000
Weights and measures	32,000
Health, charities, and welfare institutions	1,147,000
Education	923,000
Total	$2,983,000

Items primarily of urban benefit were the following:

Fire protection	$72,000
Street cleaning and garbage collection	333,000
Sewage	50,000
Public baths	2,000
Public music	49,000
City streets	124,000
City lighting	185,000
Total	$815,000

To offset the second group the only item of strictly rural benefit was $173,000 spent for local roads.

Taxes for the support of municipal activities were apparently paid in approximately equal amounts by urban and rural business and property. The total assessed value of urban real and personal property is somewhat less than the total assessed value of rural property. It may be conservatively estimated, therefore, that the rural areas paid over three hundred thousand dollars of taxes used for operating urban services.

Examination of figures for individual municipalities leads to the conclusion that rural taxpayers in almost all cases are helping to pay current expenses of strictly town activities.

In financing permanent improvements, the discrimination in favor of town dwellers is relatively even greater, but a smaller total expenditure is involved. Such improvements have been paid for almost exclusively by bond issues, involving "surtax" levies on property to carry the debt service charges. This surtax almost always bears equally upon rural and urban areas. To ascertain the relative urban and rural benefits from the "surcharge" it is not necessary to look further than the statement of present municipal debt. They are suggested in the following table for 13 municipalities typical of the various classes. In this group the rural taxable property amounts to a little more than half of the total taxable property, and the total tax burden is divided between urban and rural areas more or less equally.

Relative Debt Burden for Town and Country Benefit

	Percentage of Whole Debt	
General:		
Schools	12	
Hospitals	5	
Unclassified (refunding, etc.)	25	
	—	42
Predominantly for urban benefit:		
Public utilities and other revenue producing properties	31	
Other urban improvements (streets, etc.)	18	
	—	49
Predominantly for rural benefit:		
Roads		9
		100

Dividing the general group equally between country and town, the total benefit to the former is only 30 per cent of the whole, while that of the town is 70 per cent. This is more or less typical of the division of benefit from the "surcharge" general property tax levies of $1,291,000 in the Island outside of San Juan. Well over two hundred thousand dollars of rural taxes annually are devoted to financing urban improvements.

If the construction of revenue producing properties were financed independently of the property tax, it would be relatively easy to regulate capital expenditures so that the ratio of urban to rural benefit would not be in conflict with the ratio of tax support. Smaller urban communities have little property to tax, but they likewise have small demands for capital and also current expenditures. It is by no means impossible for the town centers to confine their expenditures to their proper share of the total taxes, either with or without an extra tax levied only on the urban area.

VI. SCHOOL REVENUE

Porto Rico must be given credit for having a system of school finance superior to the traditional systems of the continental United States, which place the burden of school support almost wholly upon the local governments. Porto Rico's plan is better because the comparatively large share of the school revenue provided by the Insular government helps to reduce the extreme difference which would otherwise exist in the school facilities provided in different parts of the Island. On the other hand, the rules in effect governing the use of Insular money prevent its distribution in a manner to equalize fully, or even approximately, school opportunities for the entire population.

The data below (given in thousands of dollars) show public school expenditure of 1927-28, exclusive of capital outlay and debt service, and their division between the Insular and municipal governments.[8]

School Expenditures	Insular	Municipal	Total
Teachers' salaries	3,755	166	3,921
Other expenses	338	757	1,095
Total	4,093	923	5,016

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[8] These figures are derived from the Auditor's records, but check closely with records of the Department of Education after making allowances for school lunch room expenses, which appear both as Insular and municipal expense in the Department's records.

The legislature appropriates the Insular share of this money from the Insular general fund, with the exception of the Racing Commission's contribution for school lunches, which was $31,000 in 1927-28. The municipal share is the revenue of the school funds, which are supported almost exclusively by the general property tax as described above.

The school laws and the Insular appropriation acts define the purposes for which Insular and municipal revenues may be used. Under the former the municipalities provide buildings, furniture, and building maintenance, including janitor service and supplies. Most teachers' salaries are paid by the Insular government, but the municipalities may employ extra teachers with the approval of the Commissioner of Education and pay "extra salaries" to other teachers.[9] At various times the Insular government has appropriated money to erect school buildings, especially for rural and high schools, and the annual Insular appropriation acts regularly provide for teachers' salaries as well as relatively small sums for school supplies, text books, equipment, minor repairs to buildings, travel of teachers, and high school laboratories and libraries. Both the Insular and the municipal governments incur expenses for supervision, including Insular school supervisors and assistant school supervisors assigned to various parts of the Island. The municipalities pay the expenses of the supervisors, and salaries and expenses of their own school directors.

This complicated scheme for dividing costs has enabled the Insular government to give considerable extra assistance to poor municipalities, as, for example, in building rural schools, but not enough to equalize school opportunity. The following table shows the variations in school support between the seven municipalities with highest assessed valuation per capita and the seven with the lowest assessed valuation per capita:[10]

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[9] Lopez, A. Andina, *The School Laws of Porto Rico*, pp. 14-15.

[10] Computed from figures supplied by the Department of Education. The seven wealthier municipalities are San Juan, Santa Isabel, Guánica, Salinas, Río Piedras, Toa Baja, and Ponce; and the seven poor municipalities are Villalba, Rincón, Barranquitas, Aguas Buenas, Orocovis, Naranjito, and Moca.

Items Compared	Seven Wealthier Municipalities	Seven Poor Municipalities
Expense per pupil enrolled	$30.94	$18.00
Expense per child of 8-14 years	31.67	14.32
Enrollment as a percentage of population of 8-14 years	102	80

Similar marked inequalities occur throughout the whole Island and are the natural result of the present system. All of the above seven richer municipalities supplemented the Insular allowance for teachers by paying salaries from their own funds. Only one of the poor municipalities did this and in a very small amount. Since the per capita wealth of the richer municipalities amounts to from five to thirteen times that of the poor municipalities, the only remarkable fact is that the inequalities are not greater.

Attempts have been made to secure legislation to equalize the benefits of the educational system in all parts of the Island, but up to the present they have failed partly on account of the opposition of localities now well provided for and partly because of objections to details of the proposed laws.

VII. HIGHWAY REVENUE

In the year 1927-28 money for highways came from the following sources:

Funds for Road Maintenance and Construction, 1927-28
(In thousands of dollars)

Items	Total	Insular	Municipal
ROAD MAINTENANCE	1,541	1,368	173
General funds	380	207	173
Gasoline tax	620	620	...
Motor vehicle licenses	541	541	...
ROAD CONSTRUCTION	1,024	824	200
Bond issues	893	693 [a]	200 [b]
Special general property tax levies	131	131 [a]	...
TOTAL	2,565	2,192	373

[a] The special tax levies and part of the money borrowed may be regarded as municipal funds but were used for roads forming part of the Insular highway system.

[b] Estimated.

Motor vehicle license revenue is included in the table as a tax for road maintenance because the high rate of license taxation evidently is justified by road costs. There is no special fund for road maintenance in which the tax is deposited.

Even with motor vehicle licenses and the gasoline tax producing over one million dollars, about two hundred thousand dollars of road maintenance cost had to be paid from general Insular funds, in addition to the $173,000 derived from municipal revenues. An increase in the motor vehicle licenses and gasoline tax sufficient to make the entire cost of maintaining roads a charge upon motor traffic has been recommended in an earlier chapter.

Road construction is now financed almost exclusively out of the general property tax, inasmuch as debt service is paid entirely from this source. The only revenue used directly for road construction in appreciable amount is that from the special property taxes authorized in certain municipalities. In San Juan, for example, a special levy was authorized for the "New Highway" connecting the old city with its suburbs.

Special assessments have never been used to finance road construction in Porto Rico, and no law authorizing them has been enacted. Perhaps they have been less needed in the past, but now that the main highways of the Island are completed, further construction will serve local rather than Insular needs, and general taxation will be unjustified. A law authorizing special assessments is, therefore, much needed. Today many local roads are kept open principally by private property owners for their own use.[11] Small stretches have been built entirely from private funds. In towns, pavements are sometimes built by property owners or by the town authorities with funds donated by property owners. All of these expenditures illustrate the possible resources to be reached by special assessments.

It may be argued, however, that in view of the poverty of many small property holders, such assessments would create hardships and might even force the poorer owners to sell their land. This is a problem to be considered in drafting a special assessments statute. Small property owners might be granted an extended period in which to pay assessments and given an opportunity to supply labor in lieu of money to the amount of the labor cost contemplated in their share of such a levy.

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[11] Sugar mills expend large sums for narrow-gauge track which under a better system might, in some cases, be used for roads of equal benefit to the factories and to the general public.

A notable characteristic of highway financing has been the general use of the borrowing power. This will be considered more fully in a later chapter on the public debt.

VIII. UNJUSTIFIED USES OF TAXATION

Taxation has been resorted to improperly for carrying the debt service of municipally owned public utilities. Apparently it has been assumed that such utilities would become revenue producers and would return to the community an income exceeding the amount the taxpayers had contributed. The present system of accounting, however, leaves the actual earnings of municipal utilities so obscure that there is little likelihood that they are operated on a self-supporting basis. Business-like financing would compel each utility to meet its own charges. If the utility can not do so, the fact should be brought out conspicuously and attempts made to improve the management before resorting to a subsidy. The present method, by making it unnecessary for the utilities to earn interest on investment, encourages waste and failure to collect revenue, and both of these evils have resulted. It may be estimated conservatively that taxes used unjustifiably for debt service of public utilities amount to considerably more than a half a million dollars a year.

Failure to use special assessments for roads and streets results in unnecessary taxation, and is in a considerable degree the cause of unnecessary municipal "surcharge" levies.

Among Insular taxes, the levy for the development of water resources resembles municipal taxes for debt service of public utilities. It is reasonable to expect water-power development to be self-supporting and to carry all costs. But promise of a future profit is not sure to be fulfilled. A method of financing could doubtless be planned which would remove any doubt as to the true profits of water-power operations and relieve the taxpayers of any tax burden.

Over one million dollars of the seven and one-half millions of property tax is used to pay public utility debt service charges, to pay debt service on other improvements which could be financed by special assessment, and to finance water power and irrigation projects.

IX. THE REVENUE DISTRIBUTION PROBLEM

The following brief statement summarizes conspicuous faults of the present assignment of revenue as indicated in the preceding pages:

So great have been the inequalities in municipal revenues that functions of local government which are essential to the welfare of the people could not possibly be developed adequately everywhere throughout the Island.

There have been similar inequalities in school revenues.

Taxes on rural areas have been used in part to support urban services.

Although municipal revenue is small, about one-third of its total, excluding that from public utilities, is devoted to permanent improvements, principally to retiring and paying the interest of bonds issued to build public works.

The construction of public utilities, like water-works and electric plants has been financed by borrowing, with the debt service paid from tax levies. This system of financing by taxation instead of from the earnings of the utilities themselves, has encouraged wasteful management.

Special assessments have not been used to pay for road and street construction.

Over a million dollars of property tax receipts goes to the financing of activities which should not require tax support.

An attempt to correct all these faults of the existing revenue distribution will necessitate radical changes in the present laws and will encounter opposition from parts of the Island which are now favorably treated. The problem involves reconciling the taxpayers' points of view with those of other interests, including decisions as to the burden of taxation to be imposed. It is also a question which must be taken up as part of the larger problem of local government rather than independently.

In another chapter we have recommended that the municipalities, as they exist today, be abolished and be replaced by local governments with jurisdiction over only the urban areas.

It is proposed that some of the functions of the present municipal governments so far as they are exercised in the rural areas be taken over by the Insular government. These functions relate to education, public health, local roads, justice and corrections. If these suggestions are adopted and the municipal governments henceforth concern themselves only with urban services such as the maintenance of streets, plazas and markets, street lighting, sewage and garbage disposal and the operation of urban public utilities, the cost of operating municipal governments may reasonably be expected to shrink to less than one-fourth of the present amount. The other three-fourths of these operating expenses would then either become Insular charges or be eliminated entirely. Such a change would greatly simplify the solution of the problem of financing. Urban services would be supported, of course, by taxes and other revenue, but only by the inhabitants of the area included in the urban district. Other effects of the change would be:

1. To obviate the problem arising out of the radically unequal financial support now given to the most essential local government services, such as education and public health, since these would be supplied by the Insular government and supported by Insular taxes.

2. To reduce somewhat the inequality between taxing jurisdictions in respect to per capita wealth, at least so far as towns of comparable size and similar financial requirements are concerned. The many local taxing districts would be wholly urban and therefore would not include either barren mountain tops or rich cane lands and sugar mills, causing extremes of low and high valuations.

3. To relieve local governments of responsibility for school construction which is now sometimes made an excuse for excessive surcharge property tax levies.

4. To remove the opportunity for extravagant urban projects financed with the aid of rural taxes.

5. To lessen the evils resulting from the common practice of levying taxes to carry the charges of debts incurred to build public utilities which should be self-supporting. If a strictly urban government were to insist upon subsidizing the water

system or the light plant, the group receiving the benefits and the group paying the taxes would be more or less identical.

Among the many questions involved in a change from the present to the proposed form of municipal government that of reassigning the property tax is of greatest interest and importance. It is apparent that the rural areas would pay taxes only to the Insular government, that they would pay no surcharge—at least after the expiration of the terms of now outstanding bond issues—and that their total tax burden would be reduced on that account. On the other hand, the Insular government would be entitled to levy and to take for its own the greater part of the 1 per cent normal levy for municipal and school purposes (90 per cent in municipalities of the first class). The fraction of this 1 per cent which the Insular government would not levy would represent a still further reduction in rural taxes. Urban taxes, on the other hand, would have to be increased in those instances where urban areas are now subsidized by the rural districts.

In case the logical and fundamental reform of the municipal government here recommended is not put into effect, any suggestions which may be made for bettering the present distribution of revenues must nevertheless have some aims in common with those sought by that reform. Such suggestions would be, for example:

1. That municipal functions be not expanded greatly as long as the present inequalities in local revenues, due to unequal wealth of different localities, continue. Insular financing of education should replace the present system, and the Insular government should enlarge its services in the field of public health.

2. That increases in property tax revenues derived from the growth of assessed valuations should not be granted to the municipal governments or to Insular special funds.

3. That the rate of the surcharge be limited to approximately one-fourth of the present maximum, or one-fourth of 1 per cent.

4. That vigorous steps be taken to help the cities and town centers to become self-supporting. The extra one-tenth of 1 per cent Insular tax in cities of the first class might be abolished. Urban areas should be given authority to levy

extra taxes for their own needs. Municipal budgets might be governed by a law dividing local revenue into urban, rural, and general, according to source, but without creating special funds, and apportioning total expenditure similarly. This enforced division of the budget might be prescribed without prohibiting the transfer of rural funds to urban services, thus allowing time for the correction of the situation arising when urban expenditure exceeds available revenue. Too abrupt action might lead to unnecessary increase in taxation. The reform in taxation of municipally owned lots is recommended.

Whatever decision may be made as to the form of local government, measures should be taken to prescribe and enforce a rule covering the financing of public utilities that will dispense with tax levies for that purpose. This will require legislation supported by administrative action by the Insular authorities. In order to end the subsidizing of government industries, the discontinuance of the water-power tax is also advisable.

Funds for local highway construction and maintenance may be obtained and augmented by enacting a much needed special assessment law and by increasing the gasoline tax and motor vehicle license fees, especially upon heavy vehicles. It might be possible, in fact, to employ special assessments as a rule to finance both Insular and local construction, including street construction. In other words, before such improvements are undertaken, the boundaries of the area they will directly benefit should be determined, even though that area may, in special instances, include the whole Island. The extent to which special assessments will be practicable and equitable depends largely upon the adoption of a proper law and upon the care with which it is administered.

CHAPTER X

FINANCIAL CONTROL

Ever since 1921 Porto Rico's financial history has been marked by rising public expenditures, increased taxes, and a mounting public debt. During recent years, indeed, Porto Rico's debt has included borrowing to cover a deficit in current funds, and, on a few occasions, the government has been unable to meet payrolls and other urgent bills when due.

Two conditions help to explain the readiness of the Island to strain its credit and revenue resources. The first was the psychological effect of the sudden unprecedented rise of sugar and tobacco prices after the war. For a few seasons, plantation corporations made great profits, and wages rose to two and three times their former level. "The dance of the millions" that swept Cuba, Japan, and other countries off their feet, reached Porto Rico. The authorities hastened to make hay while the sun shone, hopefully prognosticating a long spell of sunny weather, and to capture for local use as large a share as possible of the corporation profits that were speeding out of the Island. In this mood they started programs of public improvement and a campaign of public expenditure all along the line that, though desirable in their purpose, called for appropriations much larger than any in the previous experience of the Island. The second condition was the obvious need for numerous additional public improvements and services, such as roads, hospitals, and schools. Continental officials and Island leaders were equally ambitious to place Porto Rico as nearly on a par as possible in these respects with the rest of the country.

The ambitions of the government resulted in a conflict with corporation and other taxpayers which precipitated a crisis in government finances. This followed the collapse of business prosperity in 1921 and was the natural result of the continuation of the policy of increasing the tax burden during a period of depression. The corporation taxpayers had had little interest in the expansion program of the government and at this time became actively antagonistic. They initiated legal proceedings which were temporarily successful in enjoining tax collections to an aggregate amount of several million dollars. A new Governor, unfamiliar with conditions and evidently unassisted by competent financial advisers, approved a budget which produced a deficit of five millions. Subsequent budgets were balanced and gradually the floating debt due to the deficit was being extinguished when conditions were again thrown into some confusion by the hurricane of 1928.

Thus conditions beyond control as well as those which were preventable contributed to the financial difficulties. Not only was a current deficit created, but the bonded debt was also expanded greatly, due to a generous use of borrowing to finance public improvements. Finally, there can be no question that the government's greater expenditure during recent years, as compared with ten years ago, has been made with less careful forethought and with more waste.

Although the government invited trouble by failing to consult the situation of the taxpayers in 1921 and 1922, during most of the period neither the tax burden nor the aggregate amount of public expenditure has been excessive relative to national income as compared with other countries, though there may have been cases where certain items of expenditure may have been ill advised.

Nevertheless, it is impossible to overlook the fact that the present unsatisfactory condition of the public treasury and finances would have been prevented by a Governor and other officials who emphasized financial administration, and might perhaps have been avoided under the actual direction had the law and traditions of financial administration been sounder; had, for example, the Organic Act stated clearly the Governor's powers to act and responsibilities for action to prevent a deficit; had the budget included all public monies; and had the established practices of public borrowing in Porto Rico been sounder.

I. THE BUDGET SYSTEM

The first step in financial administration is the formulation and presentation to the legislature of a revenue and expenditure program in the form of a budget. As has been pointed out in Chapter V, the Organic Act of 1917 is defective in that it makes no express provision for the character of the budget that shall be formulated by the Governor. This omission has been in part corrected by Insular action. Until 1929, the budget procedure of Porto Rico was prescribed in Administrative Bulletin No. 293, dated August 16, 1926. In that year, however, the legislature passed an act (No. 50), which modified this procedure in several important particulars. This act requires that before the first day of December of each year the heads of the departments shall submit their estimates to the Auditor, who shall serve in the capacity of Director of the Budget on behalf of the Governor. These estimates include comparisons with expenditures of the previous two years and appropriations for the current year. It is the duty of the Auditor to study these estimates and, under the Governor's direction, prepare a budget report. Nominally, public hearings are to be held, at which taxpayers may appear, but this feature of the procedure does not appear to have been always observed.

The general financial statements in the budget for 1929-30 are as follows:

1. A forecast of the results of operations of the current fiscal year.
2. A statement of all outstanding Insular debts.
3. A statement of the debt-incurring power.
4. A list of "no fiscal year" appropriation balances and estimates of such balances as of the first day of the ensuing fiscal year (July 1, 1929).
5. A summary of the expenditure schedules of the budget which follow.
6. An estimate of revenue for the coming year.

This budget report, together with a covering letter, in which a forecast is made of results of operations for the fiscal year to which the budget relates and a description of the changes projected by the budget, is transmitted by the Governor to the legislature and is accompanied by a message in which attention is called to the more important features of the budget.

This system has been seriously defective in a number of respects. In the first place, the budget as it has been prepared has violated one of the fundamental requirements of such a document in that it has failed to set forth a complete exposition of the government's revenues and expenditures in the past and as proposed for the future. Generally speaking, it has related only to revenues and expenditures as affecting the general fund of the Treasury and has thus left out of the picture the financial operations of the many special loans and other funds. The act passed in 1929 attempts to remedy this defect by providing that the Governor shall send to the legislature additional budgets in respect to these funds (Section 4, Act 50, 1929). This attempt meets the requirement of the situation only in part, since it still is one where no consolidated and all-comprehensive expenditure and work program is prescribed.

From the technical standpoint, the budget could also be greatly improved if rules were put into effect requiring a standard budget classification of expenditures. Such classification is needed in order to disclose expenditures which conflict with the intentions of the Governor and the legislature in approving credits, and also in order to make the accounts understandable. At present, many global credits are voted and items are defined by general titles, such as "incidentals." As a rule, positions are listed in detail, but temporary employees are numerous and are paid from appropriations with obscure titles. Some credits are not used as the legislature apparently intended. When laid before that body, the budget is not printed—a serious omission, since it makes difficult a general study of its schedules.

II. THE APPROPRIATION SYSTEM

The second step in financial administration consists of the action by the legislature on budgetary proposals. Here again, the financial system of the Island is seriously defective. In the same way that it is desirable to have an all-comprehensive financial and work program formulated by the chief executive and submitted to the legislature, in which all receipts and all expenditures are set forth in logical order and balanced one against the other so that the net result in the form of a prospective surplus or deficit may be seen, so is it desirable that the legislature at one time shall consider this entire program and embody the results of its determinations in a single appropriation act which will make proper provision for the authorization of expenditures of the government during the year to which the budget relates, and make the means available for financing these expenditures.

As set forth in Chapter V[1], the Organic Act is not only defective in failing to contain provisions setting forth this requirement but also in containing a section in direct opposition therewith.

This provision encourages, if it does not render imperative, special bills, which have not been considered in preparing the general appropriation act. The result of this provision is that a large part of Porto Rico's expenditures each year are authorized by legislation other than the annual appropriation acts. Combining the Auditor's figures with special fund figures elsewhere obtained, expenditures as originally foreseen for the fiscal year 1928-29 are as follows:

The appropriation act proper	$10,968,294.70
14 special appropriations	133,993.40
3 "self renewing" appropriations	16,121.25
Part payment of floating debt, not requiring an appropriation	500,000.00
Payment of interest—an item not appearing in the appropriation act	22,500.00
Premium on workmen's compensation insurance	30,000.00
Interest and principal on loans of the Liquidating Board of the Workmen's Relief Commission—an item to be appropriated	65,000.00
Deficiencies—an estimate of appropriations to be made to cover these (later increased due to the hurricane)	56,000.00
38 no-fiscal year appropriations	250,291.28
Expenditures of 50 special funds (amount estimated from the expenditures of 1927-28)	4,380,563.00
Total	$16,422,763.63

This total excludes expenditures of money obtained by borrowing, but includes interest and principal paid during the year upon the public debt. It represents the amount chargeable to revenues, and all but the last item are chargeable to the general fund. The amount of the appropriation act proper, or $10,968,294.70, is only 67 per cent of the anticipated total expenditure for the year, without counting that due to the hurricane and excluding $2,230,000 expended from bond funds. Under this system the full facts as to expenditure authorizations, available resources, and effectiveness of expenditures are necessarily left obscure.

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[1] See page 110.

The act of 1929, which requires special budgets to be submitted to the legislature for the special funds, should in a measure, remedy this fault. This act also, it should be said, requires the Governor, in addition to submitting a draft appropriation bill to accompany his budget, to submit draft appropriation bills for the special funds. If this is interpreted to mean that all special fund expenditures shall be authorized by annual acts, a material improvement will be accomplished.

Primary responsibility rests upon the legislature to authorize the raising of revenue and the expenditure of funds, and, as a necessary incident to this, to see that expenditures are not authorized in excess of revenue as conservatively estimated. The financial records of Porto Rico for the last ten years show that this responsibility has not always been properly met. The legislature has at times voted appropriations far in excess of revenue and without due regard to such contingencies as the successful resisting of the payment of taxes by resort to the courts that have been mentioned. The result, as has been set forth, has been deficits which have more than exhausted available cash in the treasury and compelled the incurring of a large amount of floating indebtedness and resort to borrowings from the banks. The legislature has thus shown the same disregard of principles of conservative financing that has been displayed by the legislatures of certain of the states on the mainland.

The Organic Act attempts to prevent appropriation in excess of available resources through the provision (Section 34) that:

> No appropriation shall be made, nor any expenditure authorized by the legislature, whereby the expenditure of the government of Porto Rico during any fiscal year shall exceed the total revenue then provided for by law and applicable for such appropriation or expenditure, including any available surplus in the Treasury, unless the legislature making such appropriation shall provide for levying a sufficient tax to pay such appropriation or expenditure within such fiscal year.

This paragraph is ineffective because the section of the act (3) which authorized borrowing allows unconditionally "bonds and other obligations" to be issued "to anticipate taxes and revenues." The 1929 session of the legislature authorized a note issue to cover the deficit of the year 1928-29. The same proposal might be made to balance any budget, and the process could be continued indefinitely without violating the Organic Act, since all note issues anticipate revenues of future date. The paragraph quoted was demonstrated to be ineffective during the fiscal years 1923-24 and 1924-25, when the Insular government became embarrassed for funds, and the deficit of over $5,000,000 was met by borrowing.

III. CONTROL OVER APPROPRIATIONS BY THE GOVERNOR

As a further safeguard against financial extravagance the Organic Act not only granted to the Governor the power to veto acts but also to veto specific items in appropriation acts. It would seem, therefore, that it was well within the power of the chief executive of the Island to have prevented, in large part if not wholly, the appropriation of money in excess of revenue through the exercise of his power to veto specific items in the appropriation bills. The fact that he has not always done so would indicate that a part of the responsibility, at least, for the mismanagement of the Insular finances rests upon his shoulders. The circumstances under which the Governor failed to exercise adequate control have been alluded to above. The greatest deficit was the result of a single case of misjudgment. Other deficits were due to the hurricane of 1928. Whether the latter should have been prevented by radical reduction in expenditure, it is impossible to say categorically.

IV. EXECUTION OF THE BUDGET: CONTROL OF EXPENDITURES

The execution of the appropriation acts is vested in administrative officers, subject to laws and rules governing the employment of personnel, purchasing, contracting, and other phases of expenditure. Even where appropriations have been made in excess of revenues, it is entirely possible to keep actual expenditures within actual income by refraining from the making of expenditures even though authorized by law. The history of the administration of the finances during the last ten years shows that no strenuous efforts were made to reduce expenditures during the few years when a deficit was foreseen and occurred. The circumstances during these years were so abnormal, however, that curtailment great enough to prevent any deficit might not have been wise.

Laxness in executing the budget is also evidenced by the extent to which deficiencies were incurred in the conduct of the several departments of the government, rendering resort necessary to deficiency appropriations. It had been customary for the departments to expend certain appropriations in the first two-thirds or three-quarters of the fiscal year and subsequently to appeal to the legislature for deficiency appropriations wherewith to meet requirements for the remainder of the year. At the session of the legislature in 1928, the following deficiency appropriations were voted:[2]

Office	Amount
Attorney General	$40,439.26
House of Representatives—1926-27	2,203.90
House of Representatives—1927-28	6,772.40
Senate 1927-28	4,533.00
Translation Bureau	1,700.00
Public Service Commission	700.00
Insular Experiment Station	12,000.00
Insular Police	13,200.00
Finance Department	50,130.75
National Guard of Porto Rico	9,737.41
Total	$141,416.72

One purpose of the Budget Act of 1929 is to correct this practice. That law provides that the Auditor shall "distribute appropriations for the ordinary expenditures of the government over specific periods of time within the fiscal year and prevent that at any time the expenditures exceed the amount allowed for such period." Department heads are required to submit in advance estimates of these requirements. The control contemplated by this act should prevent most of the deficiencies. It may also do away with the temporary cash shortages which now occur occasionally in December when debt and interest payments fall due.

One method of preventing expenditures in excess of income would be to vest in the Governor the power to control the expenditure of funds when voted. This power has been asserted to a certain extent in the national government, where the President, acting through his Director of the Budget, has required the spending departments to allot funds in such a way as to minimize, if not entirely remove, the necessity for deficiency appropriations. It might be well to confer a similar power upon the Governor of Porto Rico. At the present time, the Governor, under the Organic Act, may indicate the order in which appropriations shall be utilized when funds in the Treasury are exhausted (Section 34). This means that he may decide which group of creditors shall have preference. The act should authorize and require the Governor, however, to cancel and transfer credits, including special funds other than bond, redemption, and fiduciary funds, to the extent necessary to prevent a deficit or treasury shortage. The Governor now lacks specific authority to make transfers from special funds, and even his power to cancel or suspend a general fund appropriation may be questioned.

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[2] Laws of 1928, Nos. 124, 134, 136, 162, 128, 126, 230.

V. AUDIT OF EXPENDITURES[3]

The Auditor is a financial control officer. His powers, however, do not extend beyond seeing that all legal requirements are met in respect to the receipt, custody, and disbursement of funds. No express powers have been conferred upon him to control either appropriations or expenditures when in excess of income.[4]

In addition to performing his work of audit, properly speaking, the Auditor is also the chief accounting officer of the Insular government. He prescribes the rules for rendering accounts, forms of documents, and procedure of controlling cash and property. He and the Governor sign expenditure warrants, and his force examines vouchers and payrolls in detail.

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[3] In view of his observations in Porto Rico the author of this chapter is not in full accord with the proposal, made in Chapter V upon government organization, that the functions of comptroller and auditor be disassociated and entrusted to separate officials. The prevailing American practice, followed in Porto Rico, of requiring the auditor's approval of claims prior to settlement, has worked well in the Island. H. J. R.

[4] No express provision has been made for the contingency of appropriations proving to be in excess of available income except one which does not control the incurrence of obligations and, consequently, is of value only in determining priority in the liquidation of outstanding claims. The question is presented as to whether, when such a contingency does occur, a responsibility does not devolve upon the Governor or the Auditor to take action looking to the restraining of the incurring of obligations even though authorized by appropriation acts.

Check is made to ascertain that the disbursements called for by the vouchers which the departments submit are legal and in accordance with regulations. The usual certificates are required to be signed by responsible expending officers. Expenditure regulations are very brief, but cover fairly well the essentials regarding salaries, attendance, travel, and the like. When cash advances have to be made, they are subject to strict accounting. So-called "accountable" payments are distinguished from settlements of accounts and are permitted only when necessary.

The settlement of claims by the Auditor before payment has not extended to irrigation district expenditures or to public works labor payrolls. Also, it does not include approval of the incurrence of obligations. Insular law prescribes the procedure for letting contracts, but it does not provide that the Auditor shall examine and approve in advance proposed contracts, or contracts to be canceled with resulting financial obligations. Without clear legal authority, the Auditor does pass upon supply requisitions, a practice that exemplifies the desirability of the exercise by him of this power. Experience with the limited system now in effect justifies it. On the other hand, files recording disputes over contracts furnish ample evidence that these, too, should be approved by the Auditor.

The Auditor has a force of examiners who make field investigations. Costs of contract work and departmental operations generally demand more attention than the examiners have been able to give them. Although it was not a major purpose of this Survey to attempt a critical examination of the economy or extravagance displayed by the Insular government in the conduct of its affairs, it was impossible for those participating in the work not to note many cases where due regard had not been given to keeping expenditures within proper bounds. In view of the great financial needs for funds with which to promote the welfare of the people there would seem to be no justification for the provision made for automobiles and chauffeurs at the government expense for many administrative and legislative employees; nor for the provision made for the payment of annual salaries to employees of the legislature who were required to work only two or three months during the year. These are luxuries in which many of the wealthiest states of the Union do not indulge. There can be little question, moreover, that a careful examination of the personnel needs of the several administrative services would show many cases in which the staffs might be materially reduced without in any way interfering with the due conduct of governmental affairs.

The Organic Act provides that "it shall be the duty of the Auditor to bring to the attention of the proper administrative officer expenditures of funds or property which, in his opinion, are extravagant, excessive, unnecessary or irregular." In compliance with the duties thus imposed upon him it is believed that the Auditor should undertake a more careful examination of the expenditures of the government than he has thus far found time to make. He should include in his annual report at least a general characterization of conditions found by him to exist in respect to the economy and efficiency with which the several services of the government are being conducted.

VI. OTHER AUDITING

There remains to be mentioned the procedure followed in auditing for the following purposes:

Control of cash.
Control of sums owed to the government.
Verification of revenue collections.

The present system gives a constant and apparently certain check of the Treasurer's transactions, the reconciliations taking place monthly. Accounts are rendered monthly by all other offices and officers accountable for public funds or revenue stamps. These are checked. Examiners, annually or oftener, visit the collectors' offices and other offices where funds or stamps are received. Offices of collectors of internal revenue are examined at least twice a year.

Recording and following up sums owed to the Insular government seem to be well cared for. Taxes receivable and bills receivable are recorded by the Auditor, in most cases in detail.

The audit of revenues includes control of revenue stamps, detailed control of revenues accrued, checking returns of collections made by the various offices, and periodic examinations of the offices where money is received. Also, one important special study of income tax assessments was made, as a result of which a large sum of money was collected. A much larger sum will be collected if the Insular government wins cases still in the courts.

The Auditor's powers and actual functions with respect to tax claims have been considered in Chapter VIII. In respect to the determination of the amounts to be levied, it has been concluded that the Auditor should not be granted broader powers than those which he now has, if as broad (the present wording of the Organic Act is not wholly clear on this point). It is highly desirable, however, that both the authority and the duty should be specifically imposed upon him by law, and preferably by an amendment of the Organic Act, to audit or to reexamine any assessments which for any reason he has cause to believe may have been improperly made. His function, in respect to assessments, should be that of audit rather than settlement of claims. In the discharge of the powers thus conferred upon him he should from time to time make what are known as "test audits" and should also examine into specific assessments regarding the propriety of which any doubt exists. The results of such examinations should be included in his annual report or in special reports to the Governor and the Porto Rican legislature. The possession of this power by the Auditor and its proper exercise would constitute a strong check upon the tax assessment authorities, while not interfering in any way with them in performing their duties or bring about any division of responsibility between such authorities and the Auditor. The enlargement of the responsibilities of the Auditor would require some additional staff. The added expenditure would be saved many times over by increased taxes levied and collected.

To make any check of revenues practical the system of making collections must be as nearly error and fraud proof as possible. In Porto Rico, great prominence is given to the use of revenue stamps for many classes of receipts, and by this means dangers of error and fraud are reduced.[5]

VII. PROPERTY CONTROL

The Auditor is responsible for property accountability (Section 20) and has in effect a procedure which fixes responsibility for property placed in service and requires periodic returns to show that it is intact. The procedure in theory and practice seems to be excellent.

VIII. ACCOUNTING

Porto Rico's present system of Insular accounting appears to be satisfactory in controlling values owed and owned, but the central books are deficient in two principal respects:

They record only revenues of the general fund and of three of the fifty special funds which are credited with government receipts. A statement of "Insular Accrued Revenues," published in the Governor's report each year and drawn from the General Ledger, shows only the revenues of the general fund. In the year 1927-28 it showed the Insular revenues to be $12,320,571 ($12,446,219 on a cash basis), whereas the true total of Insular revenue was approximately $16,921,000. On another page in the Governor's report for 1927-28 a praiseworthy attempt is made to correct the defect in the books by including revenue of some of the special funds. The production of the latter figure represents a step toward the removal of the defects of the old accounting.

They record government expenditure only in the appropriation accounts and not at all in the General Ledger. The latter record produces a figure of accrued Insular expense, which is published annually and is very misleading. Insular expenditures for the fiscal year 1927-28 were above 17 million dollars, whereas the Governor's report (page 28) shows the total "operating expense" of that year as $10,350,575.80, in which is figured a sum of $294,765.81 for depreciation. This figure of "operating expenses" does not tell the true story because it ignores capital expenditure and also excludes expenses running into millions paid from special funds. It is misleading because the reader is not informed as to what it excludes.

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[5] The method of using internal revenue stamps, however, is defective and leaves the way open to fraud. Stamps are cut in two, one end of each remaining on a return sent to San Juan and the other end on a stub. There is no effort to enforce a uniform rule as to which end of the stamp is sent to San Juan. See page 244.

The true total net revenue or expenditure of Porto Rico has not been published officially for any fiscal year since the present system of special funds was established many years ago. To prepare a statement of total net revenue and expenditures of Porto Rico, it is necessary either to refer to the records or reports of every principal department of the Insular government as well as to those of many boards and other minor offices, or to go through the entries in the Auditor's trust fund records and take a total of the expenditure entries. The books of the Auditor include all transactions but not in usable form.

To emphasize the incompleteness of the figures generally published, it is of interest to observe that over three and a half million dollars of the increase in Insular revenue during the past ten years has not been shown in the totals which have appeared in the financial reports from year to year. In the table on page 302 we have a comparison of the true and the reported revenue increase.

The present accounting officials are not to be blamed for this faulty system. It cannot be effectively reformed under the planning and directing of officials who must devote practically their whole time to administration. A new system of accounting would incidentally afford an opportunity to consolidate staffs and to reduce office costs.

IX. SPECIAL FUNDS

Faults of budgeting, accounting, and expenditure control generally, are in large measure connected with the system of special funds. These funds come into existence for many reasons, and some of them may be unavoidable, as is generally true of trust funds. Porto Rico has many funds of this strictly fiduciary character, such as the proceeds of the municipal general property tax, which the Insular government collects for the use of the local authorities, interest and redemption accounts for municipal bonds, a university investment fund, five pension and insurance funds, and the accounts of five fully

Comparison of Insular Revenue Receipts Including Special Funds with Figures for Revenue Receipts and Accrued Revenues as Published by the Treasurer and Auditor, 1917-18 to 1927-28

(In thousands of dollars)

Fiscal Years	Total of all Expendable Revenue Receipts		Total of all Expendable Revenue Receipts Except Those of Special Funds of Self-supporting Activities		Totals Published by the Treasurer and Auditor	
	Including Substantially all Special Funds	Including only Major Special Funds	Including Substantially all Special Funds[a]	Including only Major Special Funds	Revenue Receipts	Accrued Revenue
1927–28.....	16,921	15,962	16,040	15,265	12,446	12,321
1926–27.....	....	14,257	....	13,511	11,359	11,192
1925–26.....	....	14,338	....	13,734	11,774	11,740
1924–25.....	....	10,457	....	9,841	8,533	8,476
1923–24.....	....	11,049	....	10,490	9,198	9,203
1922–23.....	....	9,214	....	8,667	8,071	7,775
1921–22.....	....	10,948	....	10,365	9,578	9,451
1920–21.....	....	10,176	....	9,609	9,152	9,134
1919–20.....	....	8,100	....	7,575	7,473	7,026
1918–19.....	....	6,778	....	6,306	6,211	5,843
1917–18.....	6,185	6,082	5,748	5,678	5,426	5,296

[a] 1927-28, $155,000; and 1917-18, $97,000 included on account of telegraph and telephone revenue, which is part of the general fund and therefore is included in the published figures in the last column.

or partly self-supporting Insular undertakings: the Guayama Irrigation System, the Isabela Irrigation System, the San Juan Harbor Works, the Ponce Pier, and the Homestead Commission.

Aside from such special funds as the above, however, there are many others created by laws which assign a specified revenue to the support of a given government undertaking or undertakings. This sort of special fund is not strictly a trust, but is so styled in Porto Rico.

Insular general revenue today is credited directly into 46 different funds, and its total amount cannot be known without having the accounts of all of them. Including self-supporting undertakings, the number of special funds credited for Insular revenue is 51. Adding the general fund makes 52. To arrive at the total Insular expenditure, reference must be made to the accounts of these 52 funds and also to the accounts of bond funds and those of many appropriations regarded for accounting purposes as separate funds. For each fund there is a law, and sometimes several laws, which have to be understood in order to comprehend the status of revenues and expenditures.

Such a system is objectionable because of its complexity and because it makes it difficult to account for and control expenditures. It is easily demonstrated that equal economy of expenditure is not observed in the administration of these different funds. The Racing Commission, for example, has more money than is necessary, and it is inevitable that its operations should be less cramped than those of the average department. The special fund system is the opposite of a budget system; it is a totally different and less modern or effective means of assigning revenue to meet public needs. It makes every form of planning and control unnecessarily difficult.

The Budget Act of 1929 takes a step toward remedying this evil. Before this act was passed, no special fund budgets were submitted to the legislature. From now on, such funds cannot escape notice. The 1929 act, however, leaves intact the great body of special fund law which will continue to complicate budget procedure, accounting, and expenditure control.

A complete remedy is to do away entirely with these special funds, more than 40 in all, which are credited for general revenue. There should be no particular difficulty in taking this step and leaving to the budget director and the appropriation act the task of assigning revenue as needed. Whatever considerations have led to the creation of the funds, can be kept in view in making annual appropriations.

X. CONTROL OF MUNICIPAL FINANCES

In the preceding paragraphs attention has been given to the subject of financial control in respect to the Insular government. The problem of control of the administration of the financial affairs of the municipalities is of equal importance. The Organic Act apparently confers upon the Auditor of Porto

Rico the same powers to "examine, audit, and settle, in accordance with law and administrative regulations, all expenditures of funds and property pertaining to or held in trust" by the municipalities that it does in respect to the Insular government. It would appear, however, that in practice the Insular Auditor has either not construed the grant of powers to him in respect to the settlement and audit of expenditures of the municipalities as being as broad as his powers and duties in respect to the Insular government, or, at least, has failed to exercise those powers, due to an inadequate personnel or otherwise. Whatever the explanation, the fact is that no effective attempt has been made, on the part of the Insular government, to examine into and authorize the disbursement of funds by the municipalities prior to payment actually being made. It is a matter of general knowledge that advantage of this failure has been taken by many municipalities, and that large expenditures have been made, representing the misapplication of public funds. If this unfortunate condition is not to continue, provision in some way should be made for setting up a control that will prevent it.

A control over expenditures may be exercised in two ways: (1) By providing that no expenditure shall be made until the claim representing it has been examined and ordered paid by some responsible fiscal officer, such as the Auditor of Porto Rico; (2) by providing for a prompt audit of all disbursements, with a view to making known, without unreasonable delay, all cases where payments have been made improperly, in order that speedy action may be taken to recover the money so improperly disbursed, or recovery may be had from the officer making the disbursement or his bondsman.

If the first method is followed the Insular Auditor acts in the capacity of a comptroller. If the second is followed, he acts solely in the capacity of an auditor. It is hardly necessary to point out that as between these two methods, that of the Auditor of Porto Rico acting as a comptroller and thus setting up a situation where no disbursements can be made except upon his approval, is the more effective of the two. This method, however, is open to the grave objection that many persons would regard it as doing violence to the principle of local self-government.

In view of the foregoing, the method of control through the Insular Auditor, acting as an auditor instead of comptroller, is believed to be the preferable one. At present the Insular Auditor, through his examiners, is acting as municipal auditor, but the results, as has been implied, are not satisfactory. If a control is to result through audit, that is, through an examination of payments after they are made, certain requirements must be met. The first of these is, that the municipal treasurers having the duty of paying municipal claims should be required to give bond adequate in amount to cover all disbursements made by them during a period likely to intervene between the making of the disbursements and their subsequent audit by the Auditor of Porto Rico. Secondly, provision must be made for the recovery of all moneys improperly paid by proceeding against the municipal treasurers making the payments and their bondsmen. Thirdly, the Auditor of Porto Rico must be given a personnel adequate to enable him to make *current* audits of municipal expenditures. Finally, it should be the duty of the Auditor to make immediate report to the Governor of Porto Rico, as well as to the municipality concerned, of all payments improperly made, and where gross neglect of duty or the element of fraud is present, to recommend the suspension or dismissal of the treasurer who has been guilty of negligence or fraud and that criminal action in court be taken against the delinquent treasurer. It is believed that, if these several requirements are properly met, an adequate control can be set up over municipal expenditures without having to resort to the device of having claims settled in advance by an officer other than one directly connected with the municipality.

Under this system responsibility rests, as it should, with the municipal government for the settlement of claims and the making of disbursements, the Insular government acting merely as an auditor to insure itself that its political agency—the municipality—is honestly and properly conducting its financial affairs.

It might further be added that it should be the duty of the Auditor, in reporting the results of his audit of the several municipalities, to comment upon the economy and efficiency, or lack of economy and efficiency, with which the financial affairs of the municipalities are being conducted.

In view of the fact that the Organic Act imposes upon the Auditor of Porto Rico the function of auditing municipal expenditures, it is difficult to understand the justification for the creation of the office of municipal auditor. It is believed that the office should be abolished, both in the interest of economy and in order to make it perfectly definite that responsibility for the audit of municipal accounts rests with the Insular Auditor.

In many municipalities the fiscal officers have been incompetent, the records essential for control or audit have not been complete, and the remedial action necessary is not limited to discovery and prosecution of cases of fraud. Correction of the situation in these places would be simplified by adopting the suggestion that the audit be made currently rather than after the end of the year, and further improvement depends above all upon the measures taken to improve the character of municipal officers generally. The latter question is discussed in Chapter V, where the recommendation is made that the Governor of Porto Rico be given power to remove incompetent municipal officials.

XI. POWERS OF THE TREASURER

The Treasurer's office has charge of revenue collection, the custody and disbursement of public money, and borrowing, and not, except indirectly, of other Insular financial matters. The Treasurer's advice is asked as to financing generally on account of his interest in taxation and borrowing. Formerly he had very important duties with respect to municipal finances, but since 1917 the Auditor's Office has taken over much of this work.

In dealing with the system of financial control, the two functions of the Treasurer to be considered are: the custody of cash, and debt administration.

XII. CUSTODY OF CASH BALANCES

The Organic Act provides that the Treasurer may designate banking institutions as depositaries of the government of Porto Rico subject to conditions to be prescribed by the Governor.

It provides also that such banks must show satisfactory evidence of sound financial condition and must deposit bonds or other security with the Treasurer, and that interest on deposits shall be required. Interest has been paid by one bank at 2 per cent and checks drawn currently on that bank. The contract with this bank calls for a minimum deposit of $1,250,000. Depositaries in the United States pay 2½ and 3½ per cent upon balances held by them, and some Porto Rican banks which do not handle the checking account pay 3 and 3½ per cent. The banks paying 3 and 3½ per cent are allowed prior notice of a withdrawal of funds. In 1927-28 interest earned on bank balances amounted to $247,387.

The present handling of cash balances is satisfactory so far as security is concerned, but their total could be reduced materially so as to save paying interest on public borrowings. The balance kept in the checking account might be much less than it is, or else more favorable terms secured for handling the account. The government's share of the earnings of the checking account for the year 1927-28 was $51,883. Depositary banks should be selected exclusively by competitive bidding.

The entire Insular cash balance in all banks on June 30, 1928, was $8,375,185. Of this total, $736,798 was the balance of the general fund and $7,638,387 was the balance of special funds. Total balances of each of five groups of special funds were remarkably large, as the following tabulation shows:

Special expendable funds	$559,474
Fund for taxes paid under protest under a former law	488,997
Proceeds of sales of Insular bonds	2,084,317
Insular and municipal redemption funds (to pay interest and principal on debt)	3,660,552
Miscellaneous trust funds	845,047
Total	$7,638,387

The government, while holding this great amount of cash, nevertheless pays interest on a large debt. In fact, it has been insolvent at times and has failed to pay its current obligations, while holding millions in the special funds.

Evidently there is no necessity for the existence of some of these balances. Those of expendable funds, toaling $559,474, and those for taxes paid under protest, amounting to

$488,997, may fairly be regarded as unnecessary. Under the present laws, however, special fund balances are unavailable to meet general revenue needs. By abolishing the great number of expendable special funds, practically all of the first item could be released to meet debt. Release of the second item depends only upon obtaining legislative authority. Whatever prior claims the few taxpayers involved may have, they can collect irrespective of the funds system.

A balance of over two millions of bond funds shows lack of close calculating in selling bonds. This balance and the large cash balances of redemption funds involve a considerable loss of interest, the rates paid upon debt being from 1 to 3 per cent greater than the rates earned by the bank accounts. In case of the redemption funds the logical way to avoid the necessity for large balances is to arrange maturities of serial bonds so that the total debt service charges of each issue will be approximately equal and to withhold municipal revenue only in the amount required. Further comment on this subject will be left for another chapter.

On the whole, the present enormous cash balances and the losses of interest they occasion must be regarded as indications of careless, unscientific financial control. Such a situation also tends to make bank accounts objects of political patronage.

XIII. GENERAL CONCLUSIONS

In the preceding discussion the following have been noted as faults of the present system:

1. The duties and powers of the Governor with respect to financial control are not so defined in law or tradition as to insure effective executive action in times of financial stress.

2. Until now the budgets of the Insular government have included only a part of the general fund disbursements and have ignored a large part of the total government expenditures. Budgets have not been printed. The classification of accounts has been defective. The first and principal fault will perhaps be largely corrected as a result of a new budget law approved in 1929.

3. The appropriation acts have dealt with only a part of the Insular expenditure. There have been several appropriation acts each year instead of one. The Organic Act prevents a change as to the latter.

4. Unqualified authority to borrow money and the absence of organic provisions requiring budget deficits to be made up promptly, have contributed to the accumulation and continuation of an Insular floating debt covered by notes held by local banks and by diverting bond funds.

5. Departments have not always been required to keep their expenditures within appropriations; deficiency appropriations have been voted at each session of the legislature. The Budget Act of 1929 may remedy this.

6. Prior approval of expenditures by the Auditor has not been applied to the approval of contracts or to all classes of disbursements. The examiners of the Auditor's Office have not given as much attention as desirable to investigating contract work and other department expenditures.

7. The Auditor's Office has not done what it should do in respect to auditing revenue assessments.

8. The accounts give a wholly misleading impression of Insular revenue and expenditure. A reorganization of the accounting system would result in material office economies as well as in clarifying financial statements.

9. Faults of budgeting, appropriation, expenditure control, auditing, and accounting are made more serious than they would be otherwise by the development of the special fund system.

10. The financial system and procedure of the municipalities has been deplorably lax in many cases. The control exercised through the auditing of accounts has not been adequate and control to insure the selection of competent officials has been lacking. Incompetent officials have often not been removed.

11. The cash balances carried in banks are excessive. The law does not require advertising for bids for the privilege of holding government funds.

Correction of some of these faults is impossible without an amendment of the Organic Act. The most essential changes to be recommended are in the provisions: (1) Defining the duty of the Governor in respect to the formulation of the budget and maintaining its balance during execution; (2) prescribing the duties of the Auditor in respect to the auditing of assessments of taxes; (3) limiting the debt incurring power, to be discussed in another chapter; and (4) requiring more than one appropriation act.[6]

Most improvements in financial control, however, depend upon Insular initiative. The legislature should repeal the laws creating many special funds and cancel the authority granted for continuing expenditures. Legislation also should abolish the office of Municipal Auditor and insure a current audit by the Insular Auditor. Other important reforms are principally administrative. They include:

A complete reorganization of accounting

An extension of the audit of revenue

An extension of the audit of contract work and other expenditures

The adoption of a standard budget classification, and the printing of the budget

The inauguration of the practice of calling for bids in letting all contracts with depositary banks.

The accounting reorganization and related work constitute a task which would require the full time of an expert in government financial administration for a year or more.

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[6] For a consideration of the desirability of modifying the provisions of the Organic Act providing for the Auditor and defining his powers and duties by distinguishing between the functions of a comptroller and an auditor and vesting them in separate officers so named, see Chapter V.

CHAPTER XI

PUBLIC DEBT

The public debt of Porto Rico is partially Insular and partially municipal. The burden of interest payment on account of this debt and its repayment falls almost wholly on the general taxpayer, since the laws authorizing the contracting of the debt, whether Insular or municipal, have generally provided for the levy and collection of special taxes on property to pay the debt charge in respect to both interest and repayment of principal. To appreciate the extent to which the public debt constitutes a burden upon the present and prospective taxpayers it is necessary, therefore, to consider the combined burden of Insular and municipal indebtedness.

I. LEGAL LIMITATIONS UPON THE INCURRING OF INDEBTEDNESS

Before entering upon a consideration of the extent to which debt has actually been contracted by the Insular government and the municipalities, it is desirable to set forth the legal limitations which have been imposed upon these two governments in respect to their borrowing powers.

So far as the Insular government is concerned, both the Foraker Act and the Jones Act as originally passed, limited the debt-incurring power of the Insular government to 7 per cent of the assessed valuation of taxable property. Before 1918 this limitation was beginning to restrict the ambitions of the Insular government. On February 3, 1921, Congress amended Section 3 of the Organic Act so as to raise the limit to 10 per cent of assessed values. This raising of the debt limit, as will shortly be shown, was immediately followed by increases in indebtedness. On March 4, 1927, induced probably by the rapid increase in debt, Congress again shifted its position and provided that whenever the Insular government guaranteed municipal indebtedness, such indebtedness should be counted within the Insular 10 per cent limit. This had the effect of establishing a gradual curb upon the Insular borrowing powers. It also has the great disadvantage of discouraging

DEBT-INCURRING CAPACITY OF MUNICIPALITIES, AS OF FEBRUARY 28, 1929[a]
Based on Assessed Property Valuation at June 30, 1928

Municipalities with Debts in Excess of 5 Per Cent Limitation[b]		Municipalities with Available Margins	
Municipalities	Excess Debts	Municipalities	Available Margins
Aguadilla	$78,193.00	Adjuntas	$6,708.50
Aibonito	958.43	Aguada	36,023.06
Añasco	51,983.27	Aguas Buenas	10,420.59
Arroyo	10,299.23	Arecibo	183,433.79
Barceloneta	45,463.15	Barranquitas	11,672.68
Bayamón and Cataño	115,794.25	Caguas	72,079.15
Cabo Rojo	2,584.32	Coamo	15,006.22
Camuy	43,933.90	Comerío	19,802.25
Carolina	83,748.42	Corozal	45.106.40
Cayey	58,804.04	Dorado	36,343.49
Ceiba	31,938.90	Guánica	254,130.47
Ciales	35,526.03	Guayama	54,294.05
Cidra	16,594.94	Guayanilla	37,732.18
Fajardo	39,140.75	Guaynabo	24,738.51
Hatillo	4,128.80	Gurabo	15,740.89
Isabela	4,927.86	Hormigueros	65,031.50
Lajas	10,927.49	Humacao	56,926.71
Lares	37,995.90	Jayuya	7,333.59
Las Piedras	12,824.40	Juana Díaz	1,052.15
Luquillo	5,743.98	Juncos	69,014.42
Mayagüez	159,436.72	Las Marias	12,741.26
Moca	3,336.05	Loíza	67,447.55
Morovis	9,566.01	Manatí	69,752.74
Quebradillas	10,997.00	Maricao	40,302.46
Río Grande	28,396.03	Maunabo	740.77
Sabana Grande	24,424.29	Naguabo	25,827.62
San Lorenzo	6,219.87	Naranjito	18,310.99
San Sebastián	58,842.30	Orocovis (Barros)	59,518.15
Toa Alta	14,411.39	Patillas	10,606.57
Toa Baja	7,806.69	Peñuelas	53,350.37
Yabucoa	4,489.96	Ponce	307,501.08
Yauco	68,656.13	Rincón	25,241.20
		Río Piedras	481,573.50
		Salinas	226,011.55
		San Germán	32,868.57
		San Juan	2,448,110.07
		Santa Isabel	194,229.31
		Trujillo Alto	1,695.04
		Utuado	117,640.96
		Vega Alta	19,932.50
		Vega Baja	10,299.69
		Vieques	79,271.91
		Villalba	2,035.79
Thirty-three municipalities	$1,088,093.50	Forty-three municipalities	$5,327,600.25

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[a] Culebra is not included in the table.
[b] Debts incurred prior to the latest amendment to the Organic Act.

municipal loans guaranteed by the Insular government, and may result in such loans being made without guarantee. On June 30, 1928, the debt limit of 10 per cent of the assessed value of taxable property amounted to $34,137,000, and actual indebtedness as computed according to the Organic Act, was $7,965,000 below this limit. However, for the time being very little municipal debt is counted against the 10 per cent limit.[1]

In respect to the municipalities, the Foraker Act and the Jones Act as originally passed set up the same limitation upon borrowing powers as was fixed for the Insular government; namely, 7 per cent of the assessed valuation of taxable property. The act of February 3, 1921, which raised the limit of the borrowing power of the Insular government to 10 per cent, provided for a similar raise in respect to the borrowing power of the municipalities. Here, too, the raising of the limit was followed by a great resort to borrowing by the municipalities. Congress evidently became alarmed at this, and by the act of March 4, 1927, which has just been mentioned, reduced the limit for all municipalities, except San Juan and Ponce, from 10 per cent to 5 per cent. Prior to this act taking effect, the borrowing of a considerable number of municipalities had exceeded the 5 per cent fixed by this act.

The table on the preceding page shows the debt-incurring capacity of the municipalities as of February 28, 1929.

It will be seen from this table that 33 of the 77 municipalities had more than completely exhausted their debt-borrowing capacity, and that the remaining municipalities had a margin of possible borrowing to the amount only of $5,347,600.25, of which nearly one-half belonged to San Juan.

The provisions of the Organic Act limiting the borrowing powers of the municipalities have been supplemented by Insular legislation regulating the procedure to be employed by municipalities in the exercise of their borrowing powers.

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[1] See Auditor's *Report*, 1927-28, pp. 29, 89. The manner of computing debt incurring power used above differs from that used by the Auditor at the time the 1927-28 report was prepared.

Insular laws provide that municipalities may borrow from the Insular government when the latter has on hand any surplus or special funds available for the making of loans, or that they may borrow from private sources. All indebtedness contracted through borrowing is effected by the passing of municipal ordinances, which must receive the approval of the Insular Executive Council, which body acts only after receiving reports from the Treasurer and Auditor of Porto Rico as to the remaining debt-incurring capacity of the municipalities and as to the adequacy of the provision made by the ordinance for debt redemption. What are termed "emergency loans," running for not more than two years and not amounting to more than 5 per cent of the total of the current budget, can be contracted by the municipal assemblies without the authority of the Executive Council, but municipalities having a budget of more than $100,000 may not borrow more than 3 per cent of their current budget. In general, loans may not be incurred carrying a rate of interest in excess of 7 per cent, though loans for terms of five years or less and for not more than $50,000 may be made at a rate of 8 per cent.

Ordinances covering loans and bond issues must recite the specific purpose of each loan, must specify approximate costs and plans, must provide for the repayment of principal and interest from regular receipts or a special tax, and, when a bond issue is involved, must specify the details of the transactions—whether the bonds are to be serial or term bonds or both—and must provide for their sale at public auction. The ordinance must also specify that the principal and interest shall be paid by the Treasurer of Porto Rico. The good faith of the people of Porto Rico is pledged to the payment of principal and interest of municipal loans when so determined by the Executive Council of Porto Rico on the request of the Municipal Assembly.

II. AMOUNT OF PUBLIC DEBT

The rapid growth in the public indebtedness of the Island, both Insular and municipal, and the charge that this debt imposes upon the taxpayer are shown by the following table:

Public Debt of Porto Rico[a]

Year Ending June 30	Net Debt			Debt Service		
	Insular	Municipal	Total[b]	Insular	Municipal	Total
Amounts (in thousands of dollars):						
1908	905	1,233	2,050	89	223	312
1913	4,777	990	5,052	260	213	473
1918	8,576	2,258	8,978	621	....	....
1923	10,509	13,927	23,796	999	....	....
1928	25,367	18,982	43,729	2,116	2,297	4,413
Per capita (in dollars):						
1908	.83	1.13	1.88	.08	.20	.28
1913	4.08	.84	4.31	.22	.18	.40
1918	6.80	1.80	7.11	.49	....	....
1923	7.73	10.25	17.51	.74	....	....
1928	17.45	13.05	30.07	1.46	1.57	3.03
Percentage of assessed valuation:						
1908	.8	.1	.9	.1	.2	.3
1913	2.7	.6	2.8	.1	.2	.3
1918	3.5	.9	3.7	.3	....	....
1923	3.5	4.6	7.9	.3	....	....
1928	7.4	5.6	12.8	.6	.7	1.3

[a] Compiled from reports of the Treasurer and Auditor of Porto Rico and statements prepared by the Department of Finance. Figures for debt service, however, were obtained with the greatest difficulty, those for 1928 requiring what amounted to an analysis of the accounts. Published statistics of municipal debt service were found to be incomplete, and the figures for the years 1913 to 1928 are omitted or the published figures are replaced by estimates.

[b] Excluding municipal debt to Insular government.

When civil government was established in 1901 the Insular government had no bonded or floating indebtedness. The municipalities were burdened with floating indebtedness aggregating approximately $500,000. Provision was at once made for funding this into certificates of indebtedness running for not to exceed five years.

In the early years the Insular government made but slight use of its borrowing powers, a single loan for $1,000,000 being sold for the purpose of providing funds chiefly for the construction of roads.

On June 30, 1908, the combined debt of the Insular and municipal governments amounted to only $2,138,000. In the five years following, this debt was doubled, amounting, in 1913, to $5,767,000. In the next five years the debt was again doubled, amounting in 1918 to $10,834,000 and in the next five-year period it more than doubled again, amounting in 1923 to $24,436,000. In the next five-year period, while not quite doubling, the debt was increased by nearly $20,000,000 and amounted on June 30, 1928—including municipal indebtedness to the Insular government—to $44,349,000.

In the pages that follow consideration will be given to the purposes for which this debt was contracted, principally, of course, various classes of capital outlay. It may be stated here, however, that $2,000,000 was borrowed in 1924 in order to cover a budget deficiency. This amount was borrowed from local banks. The total budget deficit reached a maximum of $5,000,000, of which $3,000,000 was covered by diverting money from trust funds, notably from proceeds of previous bond issues.

It should further be noted that many municipalities have outstanding a great number of accounts payable.

III. PURPOSES FOR WHICH DEBT HAS BEEN INCURRED

The Organic Act does not specify the purposes for which debt may be incurred either by the Insular government or by the municipalities. Nor does it specify the time within which the debt must be paid. The only legal requirement the Organic Act imposes in this respect is that the borrowing be "to anticipate taxes and revenues" or "to protect the public credit." The Insular government, by action of the legislature, may even borrow to meet current expenses.

The following table shows the objects for which the Insular and municipal debts outstanding were incurred:

Objects for Which Outstanding Debt Was Incurred

I. Insular Debt

Public improvements issues for roads (Gross of $12,025,000, minus redemptions)		$10,157,000
Public improvement issues for other purposes than roads:		
Schools	$1,543,000	
University buildings	200,000	
Capitol buildings	1,250,000	
Penal institutions	756,000	
Insane asylum	950,000	

Objects for Which Outstanding Debt Was Incurred

I. Insular Debt *(Cont'd)*

District hospitals	400,000	
Other institutions for sick and defective	275,000	
Workmen's homes and settlements	750,000	
Farms and experiment station	210,000	
Court buildings	176,000	
Target range and aviation field	200,000	
Parks—Munoz Rivera	200,000	
		6,910,000
Other general government issues:		
Notes to cover budget deficits	1,000,000 [a]	
Workmen's Compensation Notes (to liquidate debts incurred)	100,000	
Refunding bonds (loans to municipalities)	530,000	
		1,630,000
Debt of revenue earning activities:		
Guayama irrigation	4,525,000	
Isabela irrigation	3,325,000	
Harbor improvements	130,000	
Reclaimed land	200,000	
		8,180,000
Total Insular Debt		$26,877,000
Less redemption fund balances		1,510,142
Total Net Debt		$25,366,858

[a] The amortization fund is here considered to be obligated for the repayment of advances from special funds.

II. Municipal Debt [b]

Construction of municipal public utilities:		
Water works	$6,621,346.97	
Electric light plants	645,416.00	
Piers	200,000.00	
		$7,466,762.97
Construction of other revenue earning municipal properties:		
Markets and slaughter-houses	359,725.65	
Cemeteries (partially self-supporting)	164,781.82	
Workmen's settlements, farms and villages (partially self-supporting)	79,000.00	
Municipal pharmacy	2,000.00	
		605,507.47
Construction of other urban improvements:		
City halls	436,000.00	
Sewage systems	1,669,450.00	
Streets and plazas	1,368,843.00	
Municipal jails	41,300.00	

OBJECTS FOR WHICH OUTSTANDING DEBT WAS INCURRED
II. Municipal Debt[b] *(Cont'd)*

Garbage incinerators	52,000.00	
Public lavatories	50,000.00	
		3,617,593.00
Construction of hospitals		864,757.47
Construction and equipment of schools:		
School houses	3,499,934.99	
Equipment of schools	48,087.50	
		3,548,022.49
Roads—construction and repair		1,539,799.81
Miscellaneous:		
Refunding old debt	1,721,579.80	
Administration, surveys, and costs of bond issues	594,047.11	
Improvements and services not detailed	175,429.88	
		2,491,056.79
Total municipal debt		$20,133,500.00

[b] Figures from the Treasurer's *Report* for the fiscal year 1927-28.

Relatively little Insular or municipal borrowing is in anticipation of tax collections; but the University of Porto Rico is authorized to borrow in anticipation of its property tax collections and the municipalities do so to a limited extent.

IV. BORROWING IN EMERGENCIES

The necessity for emergency borrowing is a budget rather than a debt problem; but the permission of the debt incurring authority must be secured to legalize such borrowing, and emergency debt may be defined and conditions prescribed for its retirement in statutory provisions governing debt policy. The Organic Act, however, contains no provisions on this subject.

As noted above Insular emergency borrowing recently reached the large total of five million dollars, or approximately one-half the annual budget. This debt was the result of a failure to reduce the budget following an unexpected falling off of revenue. During 1926, 1927, and 1928 retirement was under way, about one million dollars being paid each year. At the time of the hurricane of 1928 one and three-quarters of a million dollars was still outstanding. Following the hurricane additional emergency borrowing occurred.

V. CRITICISM OF THE BORROWING POLICY

The Insular government has complied with certain commonly admitted canons as to the use of bonds in public financing. These may be stated as follows:

1. Bond issues are a suitable means of financing revenue earnings investments.

2. Bond issues are proper in financing major permanent improvements which tend to increase the income of the Island, notably road construction.

3. Bonds may be issued for public improvements, such as schools and other public buildings having no connection with the income of the Island, provided the public revenue is inadequate to meet the construction costs currently.

Issues for Self-Supporting Activities. Irrigation financing is justified by the first principle. Assuming that the Isabela project will be no less successful financially than that of older Guayama projects, their debt charges will be borne wholly by these undertakings. It is possible, however, that the guarantee by the government of Isabela bonds will involve heavy Insular outlay because of failure of the project to be self-supporting.

Issues for Roads. Road construction is the principal non-revenue producing enterprise financed by bond issues and here the economic development of the Island is a major justification for the borrowing. The added road surface may be presumed to be worth to the community in money more than the cost of maintenance of the roads. Similarly the interest charge may be *earned.* If a kilometer of road costs $20,000 to build, it is possible that its average annual cost will be roughly as follows:

Interest on the investment at 5 per cent	$1,000
Maintenance and depreciation	1,000
Total	$2,000

The government is to be presumed to tax those who benefit financially from this outlay enough to pay upkeep and interest. In fact, it does tax motor vehicle traffic. It may be doubted, however, whether the roads at present being constructed are all of such general importance as to add appreciably to the Island's income.

Issues for Other Public Improvements. The third principle applying to debt for non-revenue producing improvements is illustrated by $6,910,000 of recent loans for school houses, the capitol, the insane asylum, the penitentiary, and similar buildings.

To justify borrowing for such objects it must be shown that the urgency of the things acquired was so great that the amount of money spent in interest is used more effectively in expediting the improvement than it would have been had it been spent in increasing the quantity of improvements ultimately acquired. This does not imply that schools, for example, are less useful than roads, but merely that schools do not directly produce wealth that will facilitate their financing. There is no escaping the fact that interest payments for non-revenue producing improvements in the long run lessen the quantity of possible improvement outlay and serve no useful purpose except to hasten the date of completion of the smaller quantity financed by borrowing.

Furthermore, the Insular government did not borrow because individual non-revenue producing projects were too large to be taken care of out of revenue. The object of the borrowing was to acquire improvements immediately. If paid for from revenue the same improvements could have been acquired in approximately 14 years, using the same sum of money each year which is now required for debt service.

Computation of the Total Interest Cost of Borrowing. Since interest charges are an element in determining loan policy, it is desirable to compute their amount in dollars, thus obtaining an absolute measure of total loan cost. The data below, which include bonds issued up to January, 1929, but exclude the comparatively short-term "note" issues, show this cost, in millions of dollars:

Interest	Debts for Non-revenue Producing Objects	Debts for Revenue Producing Objects[2]	All Insular Bonded Debts[3]
Paid prior to July 1, 1928	5	4	9
To be paid, July 1, 1928 to end of each issue	15	8	23
Total	20	12	32

[2] Largely irrigation.

[3] Except "refunding" bonds, which are covered by loans to municipalities.

It will be seen that of the 32 million dollars of interest paid or to be paid on the types of borrowing included above, 20 millions represent the interest cost of improvements which are not revenue producing. This figure divides roughly into 12 millions for road bonds and 8 millions for other bonds. Whatever may be said in favor of borrowing for road construction, it may well be asked whether other construction work of a non-revenue producing character should not be postponed until payment could be made out of revenue. Under the borrowing policy that has been pursued, the cost of this type of construction work that has been done totals 15 million dollars, of which 8 millions—or more than half—represent interest paid or to be paid, and only 6.9 millions went for actual building costs.

Municipal Issues. Considerations to be weighed in incurring interest charges for Insular debts apply equally to municipal debts. But the municipalities have spent relatively less on roads, which may increase the earning power of the community, and relatively more for improvements which do not help to produce wealth, than has the Insular government. Moreover, even revenue producing improvements of the municipalities, such as water-works, are not necessarily wealth producing; that is to say, a supply of pure water does not invariably create ability to pay the cost of furnishing it.

Temporary Benefit from Borrowing. Therefore, borrowing hastens the completion of immediate projects but retards future projects. During the fiscal year 1927-28 Insular and municipal governments borrowed $4,636,000 and their net debt increased by nearly two million dollars. The amount of money available for direct expenditure, represented by the sum borrowed, was but little greater than that paid out for interest and redemption of existing levies. Apparently, therefore, if there had never been any borrowing, the projects of 1927-28 could have been carried on about as rapidly as they actually were without any addition to the public debt. This comparison admittedly is not entirely fair as regards the part of the debt incurred for self-supporting undertakings and the figures include all debt. It shows, however, the unavoidable final result of continued borrowing. Non-revenue producing projects today cannot be advanced rapidly because of current charges for interest and debt retirement for similar earlier projects. Borrowing may be a temporary advantage, at first, but continued borrowing for non-revenue producing projects doubles costs with no continued benefit.

Extravagance Invited by Borrowing. The Insular government has increased its debt, exclusive of obligations incurred for properties directly producing revenue, by over ten million dollars within five years. It was almost inevitable that this abrupt augumentation of available funds should encourage bestowing them on various objects with a liberality that would not otherwise have been countenanced. The use of borrowed money was not checked by immediate budget considerations except to the extent of providing revenue for one year's debt service.

Uncertainty as to Future Capacity to Pay Debt. Porto Rico's recent history supports the assumption that the Island's future income is less easy to predict than that of most other countries. It is exposed to disastrous hurricanes and earthquakes and its chief industry, sugar, is subject to radical variations in prosperity. More than other countries it has reasons to feel uncertain as to her future capacity to pay heavy obligations. It is more likely than other countries to need its borrowing power for emergencies.

VI. TERMS FOR WHICH BONDS ARE ISSUED

It has been customary in Porto Rico to issue bonds redeemable serially. In such cases the date when the last instalment of the principal falls due fixes the term of the issue. A rule generally accepted in determining the period of a bond issue is that the estimated life of the improvement must be greater than that of the bonds. When borrowing for a nonrevenue producing object, the term must obviously be such as to keep the interest cost of the loan as low as possible; the longer the term, the greater is the total sum to be paid as interest.

These rules have not been observed for Porto Rican road bond issues. On the contrary, the governing consideration in fixing redemption dates has been the estimated period necessary to accumulate redemption funds without excessive increases in present taxation. The cost of road construction has been met by bond issues of terms varying from 12 to 36 years. The term has been lengthened as the number of loans increased, because it has been necessary to make each new issue mature later than the bonds of the existing series. Consequently, the issue of 1927 had a term of 36 years and extended the term of the whole series until 1963.

The type of road work required in Porto Rico does not justify so long a term. Road surfaces must be renewed frequently, and conditions of vehicular traffic are changing so rapidly that there is little assurance that more than a small part of the cost of the roads built today can be regarded as definitely permanent or as durable for 20 years or more.

The $6,000,000 loan of 1923-24, which was used for buildings as well as roads, is part of the public improvement series with maturities ending in 1963. The true term is 39 years, or until the date of the retirement of the whole series. Nearly all of the proceeds have been spent upon permanent improvements, but the interest cost incurred is a most forceful argument against financing them by obligations extending over so long a term. Moreover, future financial conditions cannot be predicted, or future capacity to carry the debt judged even approximately so far in advance.

Porto Rico's outstanding irrigation bonds run for periods up to 64 years from 1927 or until 1973. Not all of the investment in the irrigation systems, including their hydroelectric plants, is permanent. Future difficulty in financing is invited by the present deferred redemptions.

What has been said as to the terms of Insular bonds applies equally to municipal issues. No adequate effort has been made to limit their term to the life of the improvements for which they were incurred, nor to expedite redemptions so as to avoid unnecessary interest charges and possible financial embarrassment in the future. For example, in 1925 the municipality of Añasco was permitted to issue $75,000 of serial bonds to run for a period of 50 years. Of the total proceeds $31,500 was appropriated for road construction which is certainly not permanent in whole or in large part. In 1922 Cidra was permitted to issue bonds in a total of $92,000, for a term of 50 years. Some of the money was appropriated for repairs of various sorts. Such looseness as this, however, is said to be prevented at the present time by a more effective Insular supervision.

Other excessively long-term issues are those of Cidra, 50 years; Isabela, 47 years; Quebradillas, 46 years; San Juan, 43 years, and Toa Alta, 43 years. Under early continental American Treasurers, municipal bond issues were negotiated for only 20-year terms.[4]

Today, very few are made for so short a period.

VII. RATE OF INTEREST; MANNER OF SELLING BONDS AND NOTES

The rate of interest of recent bond issues of the Insular government has been 4½ per cent and the bonds have sold at a premium. Notes sold in Porto Rico have generally borne 5 per cent. These favorable rates are unquestionably due to a belief that Federal control of the Island's affairs will assure prompt payment of both interest and principal. Rates of municipal bonds have varied from 4½ to 6 per cent, and notes sold by municipalities locally have carried as high as 8 per cent. The municipal debt, as has been indicated earlier, is of two kinds—that issued under Insular guarantee and that without guarantee. Nearly all bonds have been guaranteed, while notes sold in Porto Rico are not guaranteed.

Bond issues, whether Insular or municipal, have for some time been sold through the Bureau of Insular Affairs in Washington, which advertises the issues and awards them to the highest bidder. Note issues have been sold locally without advertising. Arrangements for municipal loans have sometimes been of a dubious character, distinctly unfavorable to the interests of the taxpayers.

VIII. PROVISION FOR DEBT RETIREMENT

The Insular government has always laid great emphasis upon its responsibility for debt retirement and has forced the municipalities to do the same. Some features of these arrangements may be criticized, but they can be regarded as departures from good budget practice rather than as significant weaknesses of the debt administration.

Part of the Insular debt service and most of the municipal debt service is paid from special tax levies and the revenue is deposited in so-called "redemption funds." There are three Insular funds which if combined will be able to meet the obligations of the debts thus far assigned to them. Apparently, the Auditor takes care to see that the municipal funds are adequate to meet their obligations. Municipal debt service is handled almost wholly by the Insular Treasurer, and the necessary money is obtained by withholding municipal revenues collected by his department.

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[4] Governor's *Report*, 1908, pp. 61, 62.

Since all the bond issues have serial maturities more or less equally distributed over the life of each issue, redemption funds are not sinking funds. Interest and principal are paid from the same fund and as a result larger sums are needed to meet these obligations during early years than are necessary later when the interest charge is reduced. It is, therefore, impossible to calculate a special tax rate that will exactly cover annual charges. The present system might well be changed fundamentally, so as to schedule redemptions in such a way as to equalize annual debt service charges, including both interest and principal, and to provide that the special taxes authorized to meet these charges be determined not by fixing the tax rate in advance but by fixing the annual amount to be collected.

It seems undesirable to continue the present Insular bond redemption funds even to retire the present debt. The existence of special funds has invited the practice of extending bond terms to distant periods when it is hoped that the funds will have available surpluses to carry an additional burden, and there will be a temptation in the future to add still other issues in the same manner. If the funds are abolished the bondholders may be protected as well as they now are by allowing debt service to have the first claim upon money in the Treasury. By abolishing the special funds the principal debt transactions of Porto Rico will for the first time be brought into view in the budget and in the general accounts. Such action would have ample precedent in handling debt services.

We may hope, however, that the Insular government will adopt a means to carry forward debt redemption at a faster rate than is provided for in the contracts with bondholders described above, and to do this small sinking funds will be necessary. Payments to these would, of course, mean an additional provision for debt service in each year's budget until the amount required to retire outstanding issues is accumulated. By means of sinking funds, moreover, the annual debt charges could be equalized exactly and provision could be made for a few unaccountable irregularities in the present bond maturities and for three small issues for which no special provision for retirement has been made.[5]

IX. GENERAL CONCLUSIONS

The foregoing criticisms of Porto Rico's borrowing policy has emphasized particularly the enormous interest loss which has resulted from financing nonrevenue producing improvements by bond issues. This ground for criticism applies to a large part of the Insular and municipal debt. The principal debt incurred for road construction, however, has been placed in a separate category. The theory of some of the past borrowing for roads may have been sound, though the very long terms of the issues cannot be defended. From the narrow point of view of financing, the irrigation projects justify borrowing if they can carry their debt charges, but the terms of the present irrigation bonds also are excessive. On the whole we must conclude that Porto Rico has recently followed a borrowing policy which has been definitely harmful. The chief result of much of the borrowing has been a great waste of public revenue by diverting it to the payment of interest, while the piling up of debt charges is almost certain to cause embarrassment to the Treasury and hardships for the country during future periods of reduced prosperity.

Since the Organic Act undertakes to define debt limits for Porto Rico the definition should do more than state a total debt which cannot be exceeded. A scientific limitation would restrict borrowing for other than self-supporting projects to very short terms and occasions for such borrowing to unexpected emergencies. Indeed, provisions almost abolishing such borrowing are justified. Limited borrowing power is necessary to permit the Insular government to raise money in emergencies and to enable municipalities and possible future public improvement districts to spread the costs of large undertakings over a brief period of years.

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[5] The Homestead issue of 1920, $250,000; the High School issue of 1920, $300,000; the Target Range and Aviation Field issue of 1925, $200,000.

In selling and redeeming her Insular and municipal promises to pay, Porto Rico has followed, on the whole, a reasonable procedure and obtained good results. Borrowing from banks in Porto Rico, however, has not been subject to the same rules as borrowing in the United States. Above all, the absence of competitive bidding for issues of notes sold in Porto Rico invites criticism. An Insular law to require the advertising of issues and competition is badly needed. Approval by the Executive Council ought certainly to be required for all municipal loans and approval should be denied by the Council when a favorable interest rate is not obtainable.

Because of the long terms of most of the recent debt, it may be urged that sinking funds be established into which an extra debt redemption appropriation be deposited each year. If this measure is adopted, it will then be evident that the present Insular redemption funds serve no useful purpose and as a measure of budget reform should be abolished. The plan of both Insular and municipal redemption funds has had the essential virtue of providing the money necessary to meet debt obligations, but it has done so in a manner that can be greatly improved.

Since is is desirable that closer supervision be exercised over the borrowing of municipalities, it is recommended that the power to borrow directly from the public, either through the Bureau of Insular Affairs, or otherwise, be withdrawn and instead all municipal loans be authorized by the Insular legislature and issued as Insular obligations. Needless to say, the Insular legislature should not be authorized to create such obligations except after plans have been approved by the local government assembly.

CHAPTER XII

PUBLIC PERSONNEL ADMINISTRATION

Out of a total Insular expenditure during the fiscal year 1927-28 of over $15,000,000, excluding debt service, approximately $9,000,000, or 60 per cent, was paid in salaries and wages, without taking into account the wages of temporary laborers. There were about 9,000 Insular employees.

The Organic Act of Porto Rico is silent concerning civil service procedure and personnel administration, but contains provisions as to appointments of important officers, of all officers of the courts of law, and of teachers. The statutes of Porto Rico have contained a civil service law for the past twenty years. Other local laws govern many appointments outside of the civil service. The following is a general statement of the ways in which the greater number of employees are selected:

Of 9,000 employees of the Insular government, nearly half are teachers and are appointed according to the terms of the Organic Act and Insular laws, under supervision of the Commissioner of Education and on a merit basis.

About one-quarter of all employees belong to the permanent civil service. Most of these, but not all, are selected by civil service examination. The department head makes appointments from lists of three eligibles submitted by the Civil Service Commission.

Nearly 800 police officers and guardsmen are selected for appointment on merit by the Chief of Police and Police Commission; the guardsmen are appointed directly by the Commission, while the officers are appointed by the Governor with the advice and consent of the Senate upon nomination of the Chief of Police.

About 200 judicial officers and employees are appointed by the Governor with the advice and consent of the Senate. The judges of the Supreme Court are appointed by the President.

Two hundred and fifty teachers and other employees of the

University are named in the manner prescribed by the Board of Trustees.

Over one hundred members of boards and commissions are appointed by the Governor with the advice and consent of the Senate.

Two hundred or more permanent employees and a great number of temporary employees are appointed by department heads.

Since the teachers and police are in services with well defined systems for selection on merit, it should be noted that the total positions within the civil service proper and these two branches of the service combined are as follows:

Civil service proper	2,539
Teachers	4,331
Police	786
Total	7,656

Municipal employees are not included in these figures, and all except a few teachers are appointed by local authorities, the political party in power controlling the selections.

I. CIVIL SERVICE PROCEDURE

The Porto Rican Civil Service Commission is appointed by the Governor with the approval of the Senate. It consists of a President and two members. Two of the members must belong to each of the "two principal political parties on the Island." The third member may be of any or no political complexion. The President receives a salary of $3,500 and the other members per diem compensation when they meet. The Commission has a small office force, consisting of two examiners, two clerks, a stenographer, a messenger, and a porter. The total appropriation for the fiscal year 1928-29 was $15,960. In addition to enforcing the Porto Rican Civil Service Law, the Commission aids the United States Civil Service Commission by holding examinations for the Federal services in Porto Rico.

Until 1927 the office of the President of the Civil Service Commission had been held by continental Americans. Now, however, it is held by a native of the Island.

The Civil Service Commission is ordered by law to adopt rules for the classification of the civil service, but has never done so. As a result, inequalities in pay for like work exist and salaries are altered without consulting the Commission. Furthermore, the lack of control over the classification of positions has made it possible for the departments to appoint temporary employees more or less as they may desire merely by specifying a title for a position which excludes those who have qualified for civil service appointments. In the Department of Finance the number of temporaries in January, 1929, amounted to about 20 per cent of the total force, and many temporaries had been in the service for a long time. Considering the fact that the departments are under pressure to appoint favored individuals, this situation is not surprising. Although the Commission is required to certify the names of temporary employees and is given power to prescribe by rule the procedure for appointing them, it has not attempted to limit free choice by department heads. The need for standardization and classification of employments is related to this, and to many other problems of the civil service, and is unquestionably great.

Both the Civil Service Law and the Commission's rules define the classified and unclassified services. The latter is larger than would seem to be necessary or wise. As the law is interpreted, the unclassified service includes, for example, all employees paid on a per diem basis and all paid less than $300 a year excluding maintenance. It embraces also various assistants, secretaries, and stenographers, and larger groups of employees mentioned below.

As provided by the present procedure the payment of salaries of unclassified employees takes place without certification of eligibility by the Commission. As a result, employees of the Auditor's Office frequently decide whether positions are actually within or outside of the classified service and deprive the Commission of one of its proper and important functions.

Acts have been passed by the legislature which allow names to be put on the civil service eligible lists without examination. Thus, Act 83 of July 23, 1921, gives this privilege to citizens of the United States, resident in Porto Rico for five years or more who hold "diplomas" of "physician, pharmacist, dentist, veterinarian, minor surgeon, lawyer, or of any trade or mechanic art for the practice of which in Porto Rico a previous official examination and license are required." After registration in the office of the Commissioner, such persons may be appointed by any department. All licensed teachers who have served three years in the public schools shall "upon application be deemed included in the classified Civil Service of Porto Rico . . . without previous examination and shall occupy such place as in the judgment of the Civil Service Examining Board they may be entitled to."[1]

For each civil service appointment three eligibles are certified from the top of the list. Under this system membership in the dominant political party and favor with political leaders are factors in securing an appointment. To exclude all political considerations, it would be necessary to limit the certification to one name. The Attorney General has ruled that a department head may refuse to appoint from the eligible list if less than three names are offered, and may appoint instead a temporary employee. Apparently, then, the restriction of certifications to one name would require a change in the law.

Under the law the Commission may prescribe rules for promotions, but competitive examinations for promotion are forbidden. The Commission allows department heads to choose as they see fit, but requires the candidate to pass an examination for original entrance into the service in the position in question. No system of efficiency rating exists. The Commission has apparently felt that its legal authority is not sufficient to permit it to take an important part in selecting employes for promotion. The law and procedure as to removals resemble those as to promotions, in that the Commission has power to make rules that it has never drafted. That body's specific authority as to removals is limited to investigating them. The law requires that an employee be given a written statement of the reasons for his dismissal and an opportunity to reply. As interpreted by the courts, the power of a department head to remove employees is practically unrestricted.

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[1] Act No. 17, Nov. 23, 1927. Under this law it is the practice to allow teachers to take places on eligible lists for first and second grade clerical positions without examination. First grade positions have salaries of over $1,035; second grade positions salaries from $600 to $1,035. Principals and graded school teachers may take positions of first grade clerk, and rural teachers may take positions of second grade clerk.

Penalties of fines and imprisonment are provided in the statute for fraud in examinations and for soliciting political contributions from public officers and employees. The latter penalties do not prevent the regular monthly collection of political party assessments from many officers and employees.

The present situation of the civil service employee is affected by the fact that the same political party has been continuously in power since 1917, when department heads were first selected with the consent of the Porto Rican Senate. Instead of causing marked discrimination in favor of a part of the civil service, however, this has made it a matter of course for the great majority of employees to align themselves with the party in power. Thus far, therefore, the civil service law has not been thoroughly tested. It may be doubted if the present procedure will function satisfactorily if the party in power and the department heads change at comparatively frequent intervals, as is to be expected in the future.

Certain reforms are much needed to assure the success of civil service procedure under conditions which may be expected in the future, and to establish more firmly traditions of merit employment. Prominent among these are the classification and standardization of positions and rates of pay, and amendments to the law and rules governing the certification of eligibles for employment, specifying the duties of the Commission with respect to promotions and removals, and regarding a number of other matters, such as efficiency records, eligibility without examination, appointments of temporaries, and so on.

Experience indicates that the law must be strong enough to give the Commission more than a vague authority. Even without changes in the existing statute, however, the rules can be strengthened. It will be almost impossible to make material advances in civil service procedure unless the Commission is assisted for a time by an expert. If the Commission is to be made fully effective, it is probably necessary also that its President be paid a salary equal to that of a department head.

II. JUDICIAL APPOINTMENTS

Judges, prosecuting attorneys, secretaries of courts, and marshals, and all other judicial officers except Supreme Court judges, are appointed by the Governor on recommendation of the Attorney General and with confirmation of the Senate. The term of office of the judicial personnel, except that of officials of the Supreme Court, is four years. Before the passage of the present Organic Act some judicial officials were appointed by the Governor with the consent of the Executive Council, while others were elected. The provision in the Jones Act making appointment universal was, doubtless, designed to avoid the evils that had resulted from electing such officers. However, the present system has serious faults; for by requiring political confirmation of appointments it subjects local judges and other court officials to partisan influences. Even the best of these officials cannot be wholly indifferent to the political consequences of their decisions. Under the present system as it actually works out, the Governor has not had uniform success in placing good candidates in office.

With a properly strengthened civil service law, all the judicial personnel except the ten district judges might well be placed in the classified service. District judges could be given greater independence by providing longer terms and appointment without Senate confirmation.

Since the method of selecting court officials is governed by the Organic Law, the initiative in remedying the present unfortunate situation rests with Congress.

Registrars of property are selected from members of the legal profession, and are appointed in the same manner as judicial officers; except that they are required to qualify for their post by an examination before a commission named by the Supreme Court, and they hold office for indefinite terms.

III. APPOINTMENT OF POLICE

Appointments of police are governed by Insular laws.[2] Guardsmen, corporals, and sergeants are selected by competitive examination before the Insular Police Commission, and are promoted, demoted, or dismissed from service by the Commission after hearing. Those aggrieved by the Commission's action may appeal to the Governor, who may revoke or confirm that body's decision.

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[2] Act of March 12, 1908; Act No. 39 of March 11, 1915; Act No. 46 of July 15, 1925; Act No. 5 of May 9, 1927.

Higher police officers, constituting about 10 per cent of the force, are appointed by the Governor upon recommendation of the Chief of Police and with confirmation by the Senate. This method—or any special method—of appointing these officers is unquestionably bad in principle; but as no term of office is prescribed for the police, the latter have less inducement to take an active part in politics than the court officers have.

The Police Commission is appointed by the Governor with confirmation by the Senate.

IV. APPOINTMENT OF TEACHERS

Teachers are selected on a merit basis. Nominally a local school director, who is a municipal officer, appoints most of them, but the Organic Act of 1917 provides that the Commissioner of Education shall prescribe the rules to govern the selection of teachers and "appointments . . . shall be subject to his approval." In putting this provision into effect the Department has established a system of efficiency rating. The supervisors of schools initiate the ratings and the final ratings are set by the central Department of Education in San Juan. Teachers having a rating of "good minus" or better are entitled to reappointment unless the Commissioner of Education decides otherwise. New teachers are required to be appointed from among those of the highest rating, either from previous service or from normal school training. All normal school graduates are rated alike so as to rank below experienced teachers of a classification of not less than good.

In result, therefore, the control of appointments is in the hands of the central office at San Juan. Unjustified favoritism and politics may enter only through pressure brought to bear upon the Department, directly or through the school supervisors.

On the whole the system works very well. Teachers in some localities have been known to be required to make small contributions to the funds of the party locally in power, and instances of unfair treatment have doubtless occurred, but the elimination of all abuses would not be possible under any plan.

Training for the teaching profession is given by the University of Porto Rico and by the Polytechnic Institute of San German. Four grades of teachers' license are recognized, rural, graded, special (including high school), and principal. Rural teachers' licenses are acquired by completing a course for rural teachers given by the University. Licenses as graded teacher are granted to those who have completed a normal course of two years at the University. The law says that a University graduate 21 years of age having a license as graded teacher and having one year's experience may become a principal teacher. Actually the number seeking appointments is so great that a B. A. degree has become necessary to secure a position as either a special or a principal teacher.

In addition to these regular licenses, there is a "Special Teacher of English" license, intended primarily for continental American teachers.

V. RATES OF PAY

The following table presents a summary of rates of pay of 3,336 employees of the Insular government. This number excludes teachers, employees paid from special funds, and employees paid by the day.

Classification of Public Employees by Salaries

Rate Per Annum	Number of Employees	Total Salary
$ 150—$ 875	1,591	$1,056,370
900— 1,125	640	475,781
1,200— 1,452	300	389,275
1,500— 1,750	259	411,260
1,800— 2,415	319	660,667
2,500— 3,300	122	350,602
3,500— 4,875	76	284,500
5,000— 10,500	29	189,500
All salary groups	3 336	$3,817,955

The highest salary is paid to the Chief Justice of the Supreme Court, who receives $10,500. Value of subsistence is not considered, but it is one of the reasons for the great number of employees in the lowest group, which includes police guardsmen, telegraph operators, institutional and farm workers, porters, janitors, various laborers, and others. If teachers were added to the tabulation, practically all would come in the two groups receiving the lowest salary.

Most clerical employees receive from $1,000 to $1,800. Compared with current rates of pay in private business, government clerical salaries are liberal.

Institutional workers receive very low salaries, but generally have food and quarters in addition. For example, the rates paid at the leper colony, where subsistence of employees is provided, include a superintendent at $1,500, a minor surgeon and resident nurse at $1,300, two nurses at $700 each, two assistant nurses at $600, a cook at $350, laundresses at $300, servants at $250. Laborers employed on roads and other public works are generally paid $1 a day.

Heads of the principal executive departments are paid $6,000. Their first assistants and the chief of police receive $4,500, and most bureau heads from $3,000 to $4,000. The pay of the officials last mentioned does not always accord with the importance of their posts. For example, salaries of $3,300 a year are too low for the chiefs of the principal tax assessing bureaus and the head of the Bureau of Supplies, Printing, and Transportation. The Librarian of the Carnegie Library at San Juan, which is supported by the Insular government, receives only $2,500.

Judges are well paid. Associate justices of the Supreme Court receive $10,000. District court judges are paid $5,000 to $6,000, depending upon the importance of the post. These officials account for 14 of the 29 higher paid employees. Municipal court judges receive from $1,375 to $2,400, depending upon location.

Nearly all common school teachers are paid from $700 to $900. Special teachers and principals receive a little more. There are few high schools. The maximum salary of a high school principal is $2,600.

School supervisors who represent the Department of Education in the school districts are paid a minimum of $1,584 and a maximum of $1,980, exclusive of a bonus which may be paid by the municipalities. General superintendents in the office of the Commissioner of Education receive from $2,600 to $3,000, varying with the position.

As a rule, rates of pay for work requiring special preparation are moderate or low and for a few positions of great responsibility are very low, while those for routine clerical work are high. There are many arbitrary differences in pay for work of equal importance.

Public School Teachers, Classified by Grades and Salaries

Titles of Positions	Approximate Number of Positions	Annual Salaries
High school principal	20	$1,600 to $2,600
High school teacher	200	900 to 1,900
Graded principal and acting principal[a]	100	1,000 or 1,100
Special teacher (Physical education and agriculture)	17	1,000 to 1,125
Continuation school teacher (Including manual training and home economics)	140	1,125 (generally with bonus of $375 paid by the municipality)
Special teacher of English	200	1,125
English grade teachers	1,400	700 to 900
Teachers in consolidated rural schools	300	900
Rural teachers	1,900	600 to 700

[a] About 59 graded principals are filling positions of assistant supervisor of schools. Many positions of graded principal are occupied by acting principals.

VI. COMPENSATION FOR TWO POSITIONS

The Organic Act provides that no law shall "permit any officer or employee to draw compensation for more than one office or position" (Section 34). A recent decision of the Supreme Court, however, ruled that this prohibition did not apply to two municipal officials elected members of the Isabela Irrigation Commission, which is an Insular board. The prohibition has been disregarded or assumed not to apply, without a court decision, in other cases where only Insular compensation was in question. The present wording of the Organic Act evidently is not deemed to be clear and unmistakable in its application to certain classes of employment. The only instance where this is of practical importance is in its effect upon the payment of bonuses to school supervisors. The Department of Education permits bonuses to be paid by the municipalities because it cannot secure adequate appropriations for school supervisors' salaries from the Insular government. The result, however, is to diminish its authority over its agents as well as to violate the Organic Act. Such a situation must be unqualifiedly condemned.

VII. PENSION FUNDS

The teachers, the police, and other Insular employees each have pension funds provided by law. All three were created without adequate provision for their support and began paying pensions from current receipts without limiting benefits to those who had contributed. No Insular revenue was assigned to the funds in the original acts creating them, and those of the teachers and the police have for some time been in financial difficulties. At present all three receive some aid from the Insular treasury, but that given the general employees' fund, which thus far has been able to meet its obligations, is negligible. None of the funds has been studied by an actuary to determine whether it has an adequate income, and it is doubtful if any of them is permanently solvent. The great increase in government employees during the past ten years has lessened the ratio of retirements and concealed for the time being this inadequacy of revenue.

The administration of one or two of the funds has been widely criticized for granting disability pensions to persons not fully incapacitated for employment. Each fund has its own board, and no two laws resemble each other in essential provisions governing amounts or conditions of benefits. Since 1929 all funds are alike in fixing the amount employees contribute at 3 per cent of their salaries.

A thorough study and reorganization of the pension system is needed. Failure to consult an actuary as to the condition of the funds is a very obvious neglect. As a measure of conservative financing and to guarantee solvency, steps should be taken gradually to convert all of them to a reserve basis. The administration of the funds should be consolidated and directed by the Civil Service Commission, and one law should cover all three, with special provisions for the various groups.

Supreme Court justices are pensioned under a law which places the entire burden upon the Insular treasury, on account of old age or disability, to the amount of three-quarters of their regular salaries.

In addition to these pension funds, a voluntary government employees' savings and loan association has been in successful existence for some years. Members pay 3 per cent of their salaries into a common fund and receive the money back on separation from the service. The accumulated capital, which is over a half million dollars and is growing rapidly, is entirely sufficient to meet all the needs for loans of the 3,000 members. A special feature of the association's activities is a death benefit and a physical disability benefit paid by subscription of all members at the rate of one dollar or fifty cents for each death or disability, the amount depending upon the class of membership. With the present large membership subscriptions have to be restricted arbitrarily and are limited to not over four dollars from each member in any one month. As a result benefits are not paid promptly. To prevent hardship a reserve fund has been created out of which advances are made to beneficiaries. There is reason to predict that arrears will become greater and greater, besides which the plan has many other disadvantages. Obviously, the older employees gain at the expense of the younger, and the average cost of insurance is abnormally high. Finally, the plan does not guarantee adequate benefits, since benefits would be reduced by a reduction of membership and may have to be reduced also because of the accumulation of arrears. It should be possible to convert the system into one for group insurance and thus avoid the present serious objections.

VIII. MUNICIPAL EMPLOYEES

No civil service exists for Porto Rican municipalities. When the political party in power changes, it is customary to change practically all local officers and employees. Every consideration argues in favor of a civil service system applying to all but one or two municipal employees; and the most logical and economical arrangement would be to place the whole operation in the hands of the Insular Commission. The duties thus added to the Commission's work would of course require a larger appropriation, but would indirectly benefit the Insular as well as the municipal service. Such a reform would unquestionably strengthen municipal administration throughout the Island.

IX. GENERAL OBSERVATIONS

In resumé, the present methods of selecting two large groups of Insular employees, school teachers, and police guardsmen are, on the whole, excellent, but serious faults exist in the system of selecting civil service and judicial employees, while the present procedure for municipal employees is essentially a patronage and spoils system.

The Organic Act initiated the present system of appointing school teachers, but it fails to support the principle of nonpartisan merit selection of other Insular employees, and it now stands as a bar to reforming the method of selecting judicial officials and employees.

Insular legislation has failed upon the whole to sustain the idea of appointment upon merit, and in recent years laws have been passed which tend to weaken the civil service law by making exceptions to its full application. In general, the attitude of the legislature and of political leaders has not prompted the Civil Service Commission to energetic effort.

The Organic Act might wisely be amended to require a system for merit appointments and promotions for all subordinate Insular employees and for certain municipal employees, including municipal court judges; and its present provisions as to judicial appointments should certainly be repealed.

Since a decision of the Supreme Court of Porto Rico has virtually set aside the provision of the Organic Act prohibiting an employe from drawing two salaries, an amendment clarifying this point is desirable.

Insular legislation, which it may be hoped would follow an amendment to the Organic Act, should abolish exceptions to the competitive rule in original appointments to the civil service, provide for efficiency ratings throughout that service, place all judicial personnel except district judges in the service, should extend the term of office of district judges, and do away with the Governor's appointment and the Senate's confirmation of district judges and subordinate police officers.

In order to put in effect these essential reforms, particularly those relating to the classification and standardization of positions and the revision of civil service rules, a consultant in personnel administration should be engaged. The post probably need not be a permanent one, though the task might require several years for its completion. Another temporary advisor and actuary should study the pension systems and insurance problems.

CHAPTER XIII

PUBLIC WORKS

The development of public works in Porto Rico has been proceeding at a rapid pace in recent years, the official figures indicating a rate of growth rivalling that of the most progressive parts of the United States. Though not developed in accordance with a perfectly coordinated plan, it may nevertheless be said that in a single generation the work of the better part of a century has been accomplished.

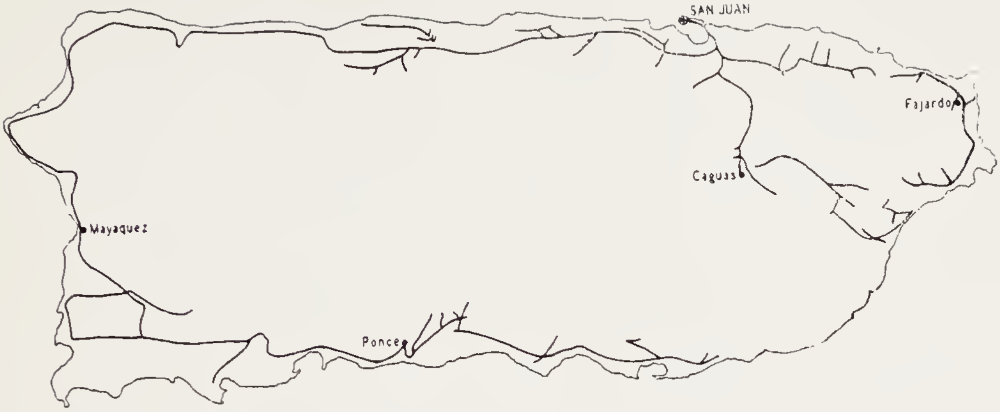
The principal types of public works are highways and bridges, public buildings, Insular irrigation and hydroelectric plants, and municipal water works and sewage systems. Of less importance are harbor improvements, telegraph and telephone systems, and government homestead enterprises. For the most part, these public works are planned, built, and operated under the Insular Department of the Interior. The Organic Act provides that: "The Commissioner of the Interior shall superintend all works of a public nature, have charge of all public buildings, grounds, and lands except those belonging to the United States, and shall execute such requirements as may be imposed by law with respect thereto, and perform such other duties as may be prescribed by law."

In the analysis which follows, we present with reference to each type of public work, first, a summary statement of the essential facts as to the extent and character of the developments that have occurred, and, second, such constructive suggestions as we believe are desirable and feasible.

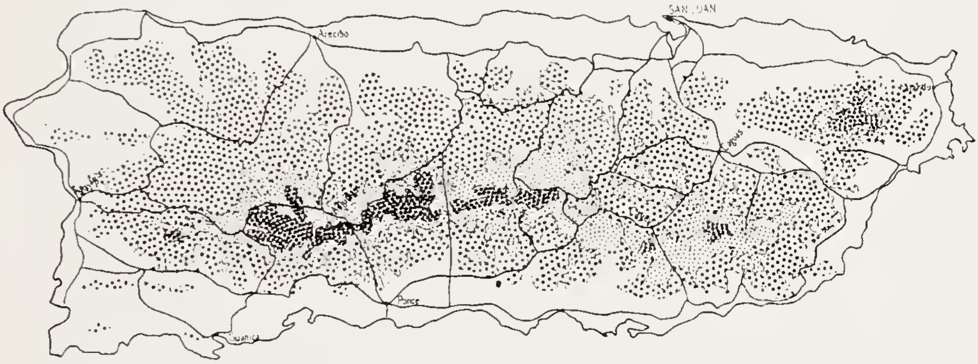
I. HIGHWAYS

The road system of Porto Rico includes, up to June 30, 1929: (1) A total of 1,786 kilometers, or slightly over 1,000 miles of hard surfaced main highways with widths of from 15 to 26 feet; (2) some 1,800 kilometers of graded dirt road good in dry weather; and (3) about 5,000 kilometers of trails not suitable for wheeled traffic. These form a network covering the entire

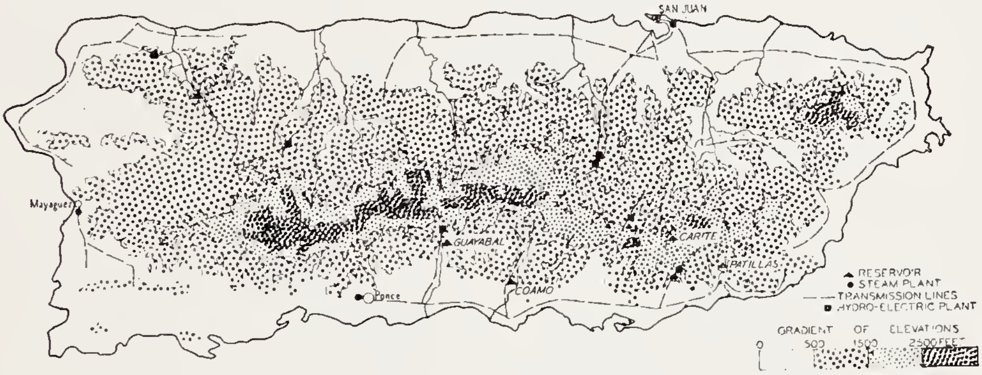
Railways


SAN JUAN
Fajardo
Caguas
Mayaquez
Ponce

Highways


SAN JUAN
Arecibo
Ponce
Guanica

Public Works


SAN JUAN
Mayaguez
Ponce
GUAYABAL
COAMO
CARITE
PATILLAS
RESERVOIR
STEAM PLANT
TRANSMISSION LINES
HYDRO-ELECTRIC PLANT
GRADIENT OF ELEVATIONS
0
500
1500
2500 FEET

country.[1] In fact, with one mile of paved highway for every 3.4 square miles of its area Porto Rico has more good roads in proportion to its size than any states except Connecticut, Rhode Island, and Vermont. The hard surfaced or "Insular" roads, under the care of the central government, extend not only along the coast, but penetrate the valleys and cross, at altitudes of 2,000 feet or more, the mountain range which forms the backbone of the Island. The other roads and trails are "municipal." Every important center of population is within four hours' automobile ride from San Juan, Porto Rico's principal seaport and capital. This has checked the development of railroads.

Insular Roads. Prior to the American occupation the Spanish government built 275 kilometers of surfaced road, mostly through the mountainous interior of the Island, as well as several substantial bridges, at a cost of $2,500,000; and during the first seven or eight years of American control 788 kilometers of additional Insular highways were completed at a cost somewhat exceeding $5,100,000. These works were paid for from revenue, the first Insular bond issue for any purpose dating from the spring of 1907.[2] During the past 20 years, however, and especially since the boom in incomes and borrowing that followed the World War, the capital cost of roads now totalling about $20,000,000 as well as of other public works has been met principally from loans. In 1925 $1,237,101 was spent on new highways, and in 1928-29, $1,593,872. Over 85 per cent of the maintenance charges, however, are derived from a gasoline tax of four cents a gallon and from motor vehicle license fees, leaving rather less than $200,000 annually to be paid from general revenues. By act of Congress of March 4, 1929, an additional amount of $2,000,000 has been made available from the Federal Treasury for "rebuilding and repairs of school houses damaged or destroyed by the hurricane in the small towns and rural districts of Porto Rico and for the employment of labor and the purchase of materials for repairing insular and rural municipal roads."

Standards for Insular roads and bridges follow the best modern practice in use in tropical countries, where there is excessive heat and rainfall. The location, curves and grades are largely determined by the fact that these roads of necessity follow the right of way of existing—often ancient—municipal roads, permitting only a minimum of correction. A few needed and skillfully located connections have been built boldly across difficult country. As funds become available, and occasionally as the result of political expediency, the Insular bureau takes over and improves one or another of the existing municipal roads, widening, straightening and correcting grades to standard requirements.

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[1] See map, page 343.

[2] Governor's *Report* 1907, pp. 61, 111, 309.

Improved roads, that is, the Insular or hard surfaced highways, are of three grades: First class, those eight meters wide from shoulder to shoulder and with wearing surface of five and one-half meters; second class, six meters wide with four and one-half meters wearing surface; and third class, five meters wide with a wearing surface of four meters. The right of way in each case must allow at least one meter on each side in addition to the shoulder. These Insular, hard surfaced roads are built to a standard of 20 centimeters (eight inches) of block telford, covered by ten centimeters of well rolled broken stone. In the center of the Island the stone used is largely a hard and angular trap or basalt; on the lowlands a softer lime or coral rock, likewise obtained locally, is more widely employed. The latter has desirable self-binding qualities, and when well covered with asphalt has fairly long life.

The cost per square meter of the telford or layer of heavier stone is from 20 to 40 cents, that of the broken stone surfacing is 20 to 30 cents, and that of the Trinidad asphalt coating is 16 to 22 cents. The total cost per kilometer of finished road has tended to increase with better or heavier construction and now slightly exceeds $13,000 a kilometer.[3] The work is let by advertising and contract, whenever good offers can be had; otherwise it is done by day labor. This system insures a check on unit and total costs. As it has worked out, these two methods have brought about an almost equal division, in quantity and cost, between contract and day labor jobs.

Asphalting and surface finishing of Insular roads and their current repair are in charge of a maintenance division quite separate from the construction force. The asphalt, Trinidad or preferably Bermuda lake, is heated in ordinary sheet iron kettles, spread over the new surface with brooms, and covered with stone chips, coarse sand, or fine gravel. The cost is now $800 per kilometer. To each square meter of surface 0.6 gallon of liquid heated to 450° F. is applied, immediately followed by the coating.

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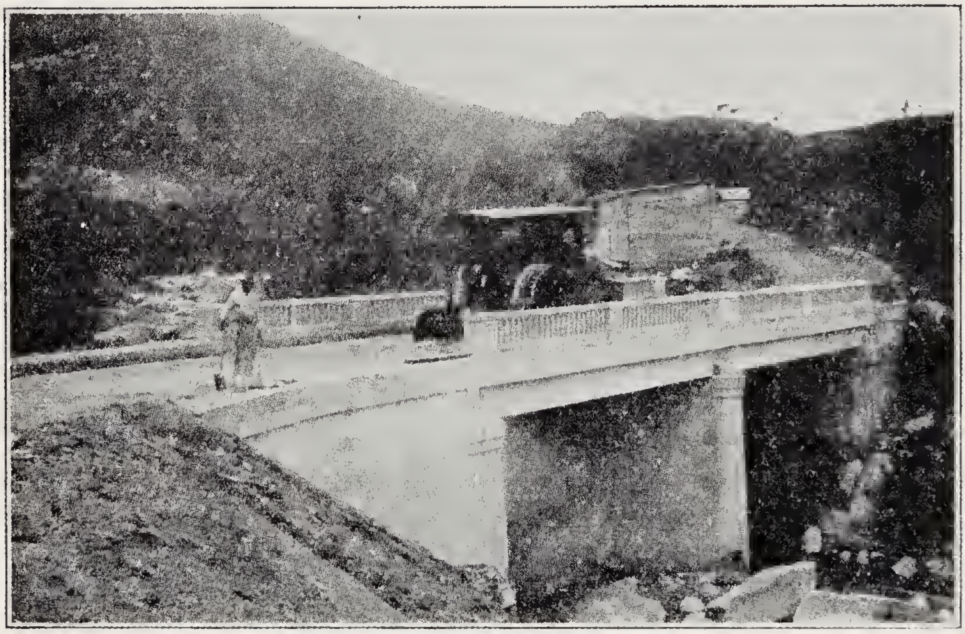
[3] It reached a maximum of $17,800 a kilometer during the high wage and price era in 1921.

Tropical downpours, occasional hurricanes, earth tremors, and landslides add to the cost of maintenance and necessitate more than ordinary care in keeping clean the deep drains and culverts. From 1903 to 1906 annual maintenance cost was between $200 and $300 per kilometer; since 1916 it has risen to $800. No recent records of traffic density exist, but with the rapid growth of motor traffic, especially trucking and bus transportation and the extremely heavy duty highways must bear during the cane hauling season, road wear must be increasing. Bridges and culverts are designed for 15-ton trucks with a 25 per cent allowance for impact, 80 per cent being on rear axle and 20 per cent on front axle. Axles are assumed to be 14 feet apart on centers and wheels 6 feet apart on axles;


Typical Highway Bridge
(Cost $11,444)

and tire dimensions are assumed to give 1,000 pounds per linear inch of width. The maximum total load allowed by law is ten tons, but special permits for heavier loads are issued. In a word, road construction and road service are accommodated to the requirements of a modern industrial country, and charges for their upkeep naturally correspond.

Bridges, culverts, and retaining walls are planned in accordance with well accepted standards. Virtually all bridges in order of frequency of type are steel, concrete, or a combination of these materials; and culverts, which include all road-carrying structures with a clear span of less than ten meters, are of concrete, masonry or steel. No timber or steel pipe culverts are used and the number of timber bridges is negligible. The Island's rugged topography and numerous streams, which often become torrents after heavy rains, call for many of these structures, their average density being 13.7 bridges and 299 culverts per 100 kilometers of roadway. Built in the substantial manner required in the tropics they cost about $600 per linear meter. Near the mouths of a few rivers of widely fluctuating volume on the south coast which can be crossed by shallow fords most of the year, bridges are still lacking and traffic is subject to occasional interruption during the rainy season except in so far as it can be detoured to a parallel highway closer to the mountains.

Municipal Roads and Trails. Ordinary dry-weather local roads and trails, having an aggregate length of nearly 7,000 kilometers, as well as city streets and plazas are built and maintained by the municipal authorities. Since a municipality embraces not only the principal town of the locality but also the adjacent country, often extending far back into the mountains, the rural population is dependent for means of communication on the good will of the townsmen. Funds for building and maintaining these roads and trails are obtained by local taxation or by municipal bond issues approved by the Executive Council of Porto Rico. The larger cities have their own street departments distinct from the rural road supervision.

Municipal roads good for all weathers aggregate about 400 kilometers in length, and those traversable only in dry weather about 1,400 kilometers. In addition, the Island probably has

5,000 kilometers of trails passable only on foot or by pack animals. Municipal improved roads, which include most of those open to vehicular traffic throughout the year, are constructed with funds supervised by the central authorities and are required to equal the standards of third class Insular roads.

Viewing the situation in a broad way, it appears that there are too many local officials for the extent of the country and the magnitude of its expenditures, and consequently too much overhead and too great division of responsibility, resulting in a tendency to delay work and to increase its unit cost. The reasonably good result that has been obtained is due to a few forceful personalities who have succeeded in spite of, rather than because of, the present methods and organization.

Tobacco Train on Country Trail

There appear to be enough roads for the Island's immediate needs. Not more than 200 more kilometers of expensive highways should be built until the whole economic situation of the Island is in hand. A well balanced plan of highway development and maintenance should be worked out and adopted. This should be based on a good topographic map and on carefully conducted research into the present and prospective use of all the roads, both Insular and municipal.

Such research should bring out clearly the actual cost of maintenance; it should show the funds available from the gasoline tax and from the motor license revenue; and these items of expenditure and revenue should be made to offset each other.[4] It may be desirable at times, however, to build or improve roads, not because they are immediately needed, but in order to reduce unemployment. If so, plans should be prepared beforehand for such an emergency so that these projects may be entered upon promptly and in a way to provide work for the largest number within reasonable bounds.

Rural Road, Coast Country

II. PUBLIC BUILDINGS

In or near each center of population are such buildings as school houses, hospitals, town halls, and other structures of notable size and importance, financed, planned, built and maintained by Insular or municipal authority. There are also a few works under the Federal government such as post offices, Army and Navy quarters, lighthouses, and harbor improvements. A division of public buildings under an experienced architect is in charge of the design, construction, and maintenance of all buildings belonging to "The People of Porto Rico." The same office performs similar services in case of municipal buildings, such as schools, hospitals, market places, and town halls, when so requested by the municipalities.

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[4] Compare pages 241, 251, and 281.

The use of bonds supplementing the funds available from the taxation has made possible the erection of some imposing edifices which have been criticized as too elaborate and expensive in view of the limited resources of the Island and the poverty of its people. This objection has been made chiefly to the marble Capitol in San Juan, but has also been directed against the new prison and the neighboring hospital for the insane now approaching completion in the vicinity of that city. Yet the two latter institutions, though perhaps too elaborately designed, will fall far short of housing all those who require their care.

The range of work in hand is wide, including scores of frame or concrete school buildings of from one to twelve rooms each, costing from $1,000 to $50,000 or more. Most of these are let by contract after receiving competitive bids. There are also buildings for court purposes, Insular telegraph offices, the School of Tropical Medicine, and workmen's homes. For the municipalities there are city halls, accommodations for fire and police, markets, and slaughter-houses, hospitals, and cemeteries as well as water-works and other public utilities, all demanding a wide range of technical skill and experience.

Schoolhouses represent the greater, and in respect to social utility the most important, class of edifices erected by the Department. These buildings probably average higher in general design than those in most of our states. They afford interesting structural problems, especially in respect to withstanding shock and wind pressure from the earthquakes and hurricanes that occasionally ravage the Island. Prior to the devastating hurricane of September, 1928, when the wind reached a maximum velocity of 160 miles or more an hour, concrete country schoolhouses, which had to be built as cheaply as possible, in order to make appropriations cover even part of the Island's needs, had walls 5″ thick reinforced vertically and horizontally with ⅜″ rods spaced 12″ on centers and staggered. In order to get the maximum of air required in the tropics, as well as of light, door and window openings were allowed to about one-fifth the total wall area. Trusses of 2″ x 6″ or 2″ x 8″ rafters with 2″ x 4″ or 2″ x 6″ ceiling joists and 1¼″ x 4″ ties, placed 2′ 6″ on centers, supported roofs of galvanized iron or tile. City schoolhouses and consolidated country schoolhouses had walls from 6″ to 8″ thick, extending to 12″ for the lower walls of two-story buildings.

In order to meet the unprecedented wind pressure of 82 pounds per square foot on vertical surfaces exercised by the last hurricane, which wrecked many of the former buildings, a new standard design has been adopted calling for 6″ walls with 1′ 2″ x 1′ 6″ piers every 15″ with the same wall reinforcement as before, but with 10¾″ reinforcing rods in every pier. Flat concrete roofs are to be substituted for truss roofs wherever possible. Roofs made of heavy hand-made clay tile imbedded in cement withstood the last hurricane, but imported clay tile nailed to wooden sheathing suffered heavy damage.

Costs of construction are lower in Porto Rico than on the mainland. This is partly on account of cheaper labor and the absence of artificial heating and ventilating. Oddly enough, although building materials with the exception of sand and stone are imported, they can also be obtained at as low a cost in Porto Rico as on the mainland and in some cases cheaper.

The whole scheme of public buildings should be a matter of careful study by a competent board of experts, in connection with comprehensive town and city planning for the Island as a whole. It should be based upon a schedule of public needs and a weighing of the relative importance of these. This course of procedure should take the place of the rather haphazard way in which public funds are spent on buildings in favored localities. The Island is so compact and all parts are so well known that there is no necessity of leaving these matters for local people to decide. The general planning should be done by the Insular government. In passing upon each structure especial attention should be given to the problem of providing proper maintenance, for this is a consideration likely to be overlooked—and in the past not infrequently disregarded—in planning ambitious building projects.

III. MUNICIPAL WORKS

The entire area of the Island is divided into 75 municipalities, in addition to the neighboring islands of Vieques and Culebra. Each has a full set of officials, including generally a director of public works, who in the more important cities must be a civil engineer, architect, or municipal engineer. In most municipalities, however, there is not enough work of this kind to keep an experienced man busy. On the other hand, the wide variety of community needs demands the advice of many different kinds of technicians—one day a sanitary engineer, the next a hydraulic engineer, then an electrician, and so on. Because of this condition the designing and construction of municipal improvements, such as water-works, sewage systems, electric plants, public parks and related projects are entrusted to engineers of the Division of Municipal Works under the Commissioner of the Interior.

The volume of work estimated upon during the year ending June 30, 1927, aggregated $450,000. These projects included water-works repairs, installing chlorinization plants for sterilizing water, acquisition of meters, street paving, electric transmission lines, and a variety of details such as gutters, public cisterns, deep wells, monuments, and recreation parks. The works completed to date include water-works supplying 57 towns, 26 sewer systems and 11 Insular and 11 municipal electric plants. Private plants furnish electric light to all but one of the remaining municipalities.

The necessity of exercising close supervision over these municipal enterprises is illustrated by the condition of the water-works of the city of San Juan. The old plant or mechanical system at Río Piedras has cost over $1,000,000. It is obsolescent but must still be largely depended upon. A new gravity system which was to be done years ago has already cost over $3,500,000. Apparently it does not have an adequate water supply and the main conduit breaks frequently. When we add to these conditions the fact that the city has no complete or effective meter system, it is not surprising that the demand for water already exceeds the estimated capacity of its service when finally finished.

As in the case of public buildings, and possibly of greater importance, is the need of comprehensive planning of all larger municipal works such as those of water supply, sewage and other facilities. They should be standardized as far as practicable and constructed with a larger view to maintenance requirements. Too many examples can be pointed out of large sums spent for desirable works, now practically useless because they were not "fool proof," or because adequate funds are not provided to keep them in repair. Maintenance costs are high in the tropics and are usually underestimated.

IV. PUBLIC LANDS

The public lands belonging to "The People of Porto Rico" are in charge of a division of the Insular Department of the Interior, which from time to time makes surveys and leases portions. This Department also gives attention to municipal lands when requested, and keeps a record of all public realty showing its area, value, and description.

The total area owned by the Insular government is not known, as many tracts have never been surveyed, while others have been acquired through tax sales and are held by incomplete titles. Much of this property, especially that included in sites occupied by old public buildings, was originally owned by the Crown of Spain and was later transferred by act of Congress of July 1, 1902, to the government of Porto Rico for the use and benefit of the people of the Island. The larger tracts lie in the more remote parts of the Island, and are rocky, rough, and untillable, and valuable if at all only for forest purposes. Other tracts consist of low lying swamp lands or arid areas which have been considered worthless.

Mangrove swamps have an economic value as a source of charcoal, and when they lie near cities are even occupied as hovel sites by squatters. In fact, the legislature, by an act approved July 14, 1924, authorized the Commissioner of the Interior to sell to poor families the mangrove lands in the town of Cataño across the harbor from San Juan. Accordingly transfer of title has been expedited to occupiers who have filled and improved buildings sites upon them. From the standpoint of charity, in the popular meaning of the word, donating or selling at a nominal price worthless lands to the deserving poor is commendable. From another standpoint, however, it is highly reprehensible, because these lands are low, wet, and malarious. They quickly become slums, a menace to the health and morals not only of their inhabitants but also of surrounding districts. Upon them are erected wretched hovels, the refuge for the worst part of the population. As city planning has not yet been adopted, and there can be little or no sanitary control, the use of public lands in this way creates additional social problems, and in the long run is a detriment to the community.

V. HARBORS AND DOCKS

The building, operation, and maintenance of piers, docks, and related works, as well as oversight of matters associated with the use of anchorage and channels, is in charge of a Division of Harbors and Docks of the Insular Interior Department. The principal harbor on the Island is that at San Juan, controlled by a Harbor Board, organized in 1912. This Board's duties include the "exploitation, operation and maintenance of the Insular bulkhead, including the facilities installed for loading cargo," and it "is authorized to fix charges for the use of the public facilities under its charge and also the wharf and harbor dues." Its financial operations have been so successful that the most of its bonds, though not due for ten years or more, have been paid off.

The existing harbor project at San Juan, as described in the report of the Chief of Engineers, U. S. Army, calls for a channel 30 feet deep at mean low tide at the entrace and then 500 feet wide along the main fairway to a point opposite the city, together with dredging about 160 acres within the harbor and extending into San Antonio channel. In connection with this dredging considerable areas of swamp within the city limits have been reclaimed. These are the property of the Insular government and are now partly used as an air port.[5]

VI. INSULAR TELEGRAPH AND TELEPHONE

Due largely to historical conditions the Insular government is carrying on a business which elsewhere is entrusted to public service corporations. There is on the Island the usual private telephone system regulated by the Public Service Commission and serving most of the centers of population. Parallel with this is a telegraph system originally built and maintained by the Spanish government, which has been taken over and operated by the Insular administration, and a public telephone system which interconnects and splits territory with the lines of the private company already mentioned, which is a subsidiary of the International Telegraph and Telephone Corporation. In this connection, it is interesting to note that the inventor of the recording telegraph, Samuel F. B. Morse, while visiting the Island in 1849, conducted some of his experiments there, and built a telegraph line three miles long in the municipality of Arroyo.

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[5] For further details as to harbor works and port facilities, see page 449.

The government systems are operated at a loss, the annual deficit being about $25,000, after crediting receipts with the value of free and reduced rate official messages but without debiting them with loss of taxes.

VII. WATER UTILIZATION

Water is fairly well distributed throughout the Island, although there are sections along the southern coast and in the northwestern section where prevailing droughts necessitate its conservation. The rainfall from which all waters come is influenced in its distribution by the high central mountain mass, on the upper slopes of which the precipitation is over 100 inches a year. From these elevated regions small streams descend with rapid fall to the delta areas they have built at sea level. The head water streams have cut back on the northern or more rainy side, so that the line of water parting or main divide is far to the south of the central or east-west axis of the Island. Thus, the descent to the Atlantic Ocean on the north is flatter than that to the Caribbean Sea on the south. For example, a drop of rain striking the ground at an altitude of 2,000 feet may travel 25 miles to get to the ocean on the north and only five miles to reach the sea level on the south. The value of water power from a flow of a cubic foot per second thus may be five times as much on the south side as compared with streams flowing northerly. Most of the water falls on the northern or rainy slope. Tunnels carrying water through to the steeper southern slopes are the logical result; some have been built, others planned.

The control of the utilization of the water supply of Porto Rico is one of the most important problems with which the Insular government has been concerned. Indeed, the most notable public works on the Island are those connected with irrigation and water power. The location of these projects is shown in the map on page 343.

Irrigation. During the early days of Spanish occupancy small irrigation systems were built to bring water to dry lands on the south side of the Island. The laws and customs of Spain, an arid country where irrigation has been practiced throughout the centuries, were adopted as a matter of course. Concessions for irrigation by individual landowners were granted as early as 1841. During the next ten years no less than 58 concessions were granted, all of them on the south coast. In 1853 a royal order decreed exemption for ten years from taxes on the increased value of land and crops incident to irrigation. These earlier concessions were granted by the local municipal authorities. As a rule the amount of water to be used was not specified, nor was the extent of land to be irrigated. In 1866 the Spanish law of waters was extended to Porto Rico. Since that time more or less complete record has been kept of the concessions granted, but there are no accurate data regarding many of the old concessions so that an accurate estimate is not practicable. As yet no system has been provided for ascertaining and recording them.

The law of waters promulgated for the Spanish peninsula on June 13, 1879, was put in force without change on the Island of Porto Rico, the details being placed in the hands of the Spanish Minister of the Colonies. Later, by act of the legislative assembly of Porto Rico approved March 12, 1903, these laws were continued under the American Government. The more important private concessions under them are shown on the following page.

The necessity of irrigating additional lands and the success already obtained brought about a general demand for the extension of such works under public ownership. As a result bonds were issued to build a comprehensive system.

The first project undertaken was designed to irrigate some 33,000 acres lying in a 40-mile strip of level fertile lands along the south coast of the Island between the Patillas River on the east and the Jacaguas River on the west. Most of the arable land in this area has been planted in sugar cane since long before the American occupation, but during the last 30 years many of the former cane farms of moderate size have come into the possession of private corporations owning large centrals.

Operator	Location	Acres Irrigated Gravity	Acres Irrigated Pumping
Sugar Companies:			
Central Mercedita	Near Ponce	[6]	[6]
Fajardo Sugar Company	Fajardo	900	....
Central Constancia et al	Near Ponce	1,000	480
Central Rufina	Near Guayanilla	790	1,700
Central Los Caños	Near Arecibo	800	....
Central Cambalache	Near Arecibo	....	400
Central San Vicente	Near Vega Baja	500	....
Other Sugar Companies:			
Lluberas Hermanos	Near Yauco	756	75
Russell and Company, S. en C.	Near Ponce	1,170	2,570
“ “ “ “ “ “	Near Guánica	578	2,251
“ “ “ “ “ “	Near San Germán	673	363
“ “ “ “ “ “	Near Añasco	562	813

This project was reported upon favorably by B. M. Hall, of the United States Reclamation Service, in 1907, and was finally authorized by the legislature of Porto Rico in 1908.[7] The water supply occurring on the south side of the mountains is reinforced from watersheds on the opposite slope by tunnels supplied by the streams which flow northward. Regulation is secured by a series of reservoirs, several of which also serve for the development of hydroelectric power.

Beginning at the eastern end, the principal feature of interest is the Patillas Dam, built of earth and stone, impounding the waters of that stream. The dam has a maximum height of 132 feet and a length of 1,020 feet. The maximum capacity of the reservoir is 14,500 acre feet. The Patillas

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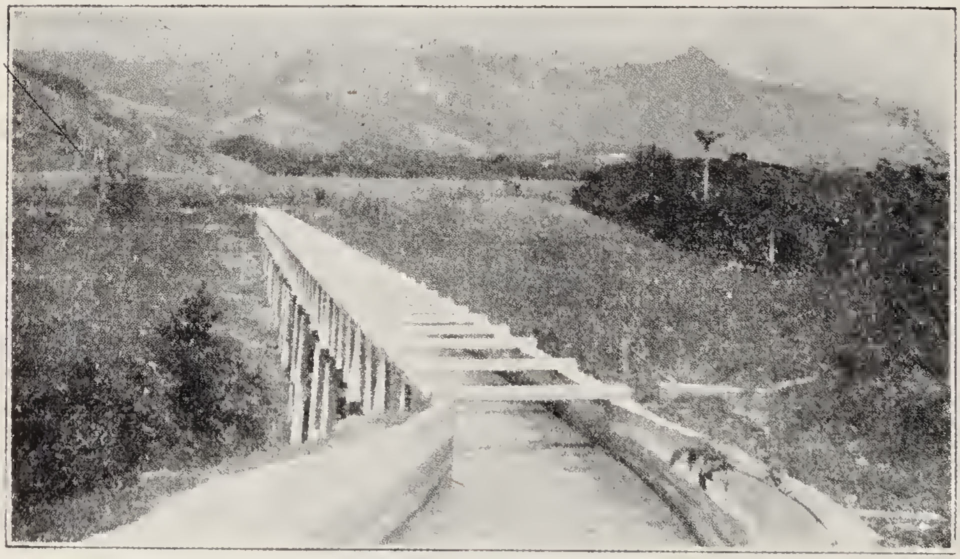
[6] In addition to participating in service of the government system, this company has its own gravity system, with a reservoir capacity of 700 acre feet, as well as several pumping stations.

[7] Compare also H. M. Wilson's *Report*, U. S. Geological Survey, "Water Supply and Irrigation Papers No. 32."

Canal starts at the dam and follows the foothills, carrying an average of 70 cubic feet per second, with maximum capacity of 105 cubic feet per second. It furnishes water for 12,800 acres.

Reservoir Construction
(High Mountain Country)

The Carite Dam impounds the headwaters of La Plata River, which drains an area north of the divide. These waters naturally flow northerly into the Atlantic Ocean, and if not



Government Irrigation Flume
(Concrete Construction)

diverted would follow the channel of the La Plata River to the Comerío power plant of the Porto Rico Railway, Light and Power Company. The Carite Dam is of earth, with stone facing, a maximum height of 110 feet, 500 feet long. The reservoir created by it has a storage of 9,000 acre feet. From this reservoir water is carried to the south side of the Island through a tunnel over 3,000 feet long, at an elevation of 1,738 feet above sea level, whence a steel pipe line[8] delivers it with a drop of 760 feet to the water wheels of the Carite hydroelectric plant. The water is again picked up and delivered with a head of 345 feet to a more recently completed auxiliary hydroelectric plant above Guayama. Altogether 15,644,821 kilowatt hours were generated in 1927-28, of which 12,345,174 were delivered to general consumers.

The flow through the tunnel and various conduits averages 28 cubic feet per second. It is discharged into the Aguamanil River and then diverted into canals for use in irrigation. One of these canals turns east and the other west toward Salinas. Both are above the Patillas ditch and serve 5,000 acres of higher lands.

Continuing west the next notable work of the system is the Coamo reservoir, a reinforced concrete structure 65 feet high and impounding 2,700 acre feet of water which is turned into the Juana Díaz Canal with capacity of 70 cubic feet per second. At the extreme westerly end are the works on Jacaguas River. The flow of this stream is to be increased by waters brought by the Toro Negro tunnel from the north side of the Island. This is at an elevation of 2,726 feet above sea level, is 2,770 feet long and has a capacity of 360 cubic feet per second.

Further down on the Jacaguas River is the Guayabal Dam of reinforced concrete 115 feet high and 1,670 feet long. The reservoir has a capacity of 9,524 acre feet. From this reservoir water is taken out in the Juana Díaz Canal, which winds around the foothills and delivers water to 15,200 acres.

This public irrigation system has been in operation since 1914. The amount of water appurtenant to the land is four acre feet per year. Deliveries are continuous day and night.

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[8] The annual power delivery is 14 million k. w. h. See Governor's *Report*, 1923, pp. 36, 150; and 1925, pp. 52, 247.

Each planter is allowed to use water on request at his convenience. In sandy soils four acre feet is not sufficient, and some planters supplement water from the government system by use of pumps, operated with current bought from the same system, which at the same time tends to drain the wetter lands and keep down the water table.

Insular bonds to the amount of $5,000,000 were issued to construct this system. Interest and amortization against them, as well as costs of maintenance and operation are met, after deducting income for the sale of electric current, by a water tax of not to exceed $15 per acre per year on 24,000 acres. Actually this tax amounts at the present time to about $11.50. The remaining 9,000 acres having vested rights in the use of the water receive the benefits without cost.

The next water-development project undertaken primarily for irrigation is in the northwestern corner of the Island, where agriculture has been least remunerative, partly because the soil is not as good as in many other parts of Porto Rico, but largely because of deficient rainfall. Preliminary work on this project was begun in June, 1921, in accordance with an act of the legislature passed in 1919, and in 1922 the final plans were approved by a board of engineers designated by the Director of the United States Reclamation Service at the request of the Insular government.

The earthen storage dam on the Guajataca River is a little over 120 feet in height with a top length of over 900 feet. The dam has apparently been well built on carefully considered lines, but there is a slight movement of the earth at the lower toe. This is by no means unusual in the case of new structures of earth built on uncertain foundations. It is being carefully watched, however, and additional weight is being placed on the toe to prevent further slipping. The capacity of the reservoir created by this dam is 33,000 acre feet. The diversion canal with a capacity of 150 second feet, extends along the river canyon for three miles, then turns toward the west, passing through rough country, necessitating a series of concrete-lined channels, tunnels, flumes and siphons.

At the end of the main canal, where it drops about 100 feet, has been placed a hydroelectric plant capable of generating 900 horsepower, known as plant No. 1. At the end of the canal from No. 1 is another drop of nearly 100 feet where it is planned to erect plant No. 2 with a capacity of 500 horsepower. The power lines supply municipalities within the district and will ultimately be interconnected with other public and privately owned lines. There is no question as to the value of the water power and the repayment of the cost of installation and operation together with a profit which will tend to reduce the cost of water to the irrigated land.

The main point of interest is as to the future use of this land. Will this irrigation project justify the hopes of the promoters? Will it pay? Can the small landowners be induced to utilize the water to advantage or can other farmers be brought in, settled upon the ground, and enabled to make permanent self-supporting homes producing food for other citizens? This is the question of first importance. Such experiments have been and are being tried elsewhere, a vast amount of experience has been had, and the results have been negative.

In order to determine what lands should be included and to settle innumerable questions which arise from dealing with hundreds of landowners, a body known as the Isabela Commission was constituted, consisting of five men, three elected by the property owners and two appointed by the Governor. This commission selected as the temporary irrigation district an area of 11,199 acres.[9] In addition, there are at least 4,000 acres which can be included in the permanent district. The total number of farms in the temporary district is 1,257, of which 1,000 are of less than ten acres.

The Commission found that the small landowners do not understand the use of water for irrigating fields, nor do they know of crops which would be most successful under irrigation. Because of this condition the Department of Agriculture was called upon to give advice. An agricultural experiment station has been established on the tract and experts employed to assist the farmers. The president of the Commission reports that plantations of cocoa, cane, tobacco, coffee, and minor crops are often on unsuitable soils without proper cultivation and in such poor condition as to justify the complaint of the owners that the proceeds do not enable them to support their families and also pay their water taxes. The farmers owning considerable areas of land and who should be men of established position, live poorly in badly constructed houses and without furniture. They do not produce the things they consume and which can be grown. They buy in the nearby stores at high prices imported food products. They do not know the benefits of irrigation nor of proper cultivation.

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[9] Governor's *Report*, 1928, p. 71.

It early became evident that if the government actually forced these landowners to pay the taxes imposed to meet the principal and interest on the bond issue, it would not be long before the small proprietors disappeared and the land was concentrated in the hands of large owners who could operate it at a profit. The tendency of the small irrigated farm holdings to become merged in the large commercially operated plantations is illustrated by an inventory made by the Chief Engineer of the Guayama Irrigation Service comparing conditions in 1916, shortly after the system was put into use, and in 1928, or 12 years later. In 1916 were listed 75 farms; in 1928 there were only two-thirds as many. Of the 75 farms 68 were of 500 acres and less in 1916, and contained one-fourth of the total area. In 12 years these had dropped to 47 farms with only one-eighth of the total area. Four large plantations included nearly 80 per cent of the land irrigated.

In the estimate of $3,325,000 for the construction of the Isabela project, provision was made for the payment of interest on the bonds and other necessary expenses during the year 1928. The collections during that year have been small, necessitating additional loans to meet the costs for amortization and interest.

The question recurs whether these thousand or more small farmers of the irrigable zone will ever be in a condition to pay from $12 to $15 per acre per year as now imposed by law. The majority of these men lack capital and the necessary experience to put the dry lands under irrigation. The Isabela Irrigation Commission arrived at the conclusion that it would be necessary for the government to supply the necessary capital to put the dry farms under irrigation, in the form of loans on long terms and at low rate, to give free advice to landowners and systematic farm instruction in the rural schools. It also proposes that the Homestead Commission *(Comisión de Hogares Seguros)* endeavor to secure all of the lands not utilized by the individual farms and dispose of them in small tracts to individuals who can ultimately purchase them. It also advocates the establishment of co-operative associations for production and consumption.

Partly on account of the hurricane of September, 1928, and partly because the collection of the water tax at the rate originally proposed would have compelled the sale of a great number of properties either voluntarily to large owners or involuntarily under tax foreclosure, the legislature voted at a special session in June, 1929, to remit the tax for one year, to reduce it to $6 for the first year thereafter, to $12 for the second year, to $13 for the third year, and that the collection of the full tax of $15 an acre should be deferred until the fourth year after the period when it would normally have begun to be collected. In order to provide for the payment of maintenance charges and of interest upon the original bonds issued for the construction of the project during the period of reduced income as well as for further extension of the irrigation system, a new bond issue of $1,250,000 was authorized.[10]

Hydroelectric Power. As an integral part of the water development of each of the Insular irrigation systems just described consists of facilities for manufacturing and distributing electric power, these high-lying reservoirs and conduits have a double use, since they conserve and convey water both for irrigation and for power. For either use alone the cost might be prohibitory; each helps the other. The revenue obtained from the sale of the power serves to reduce the cost of water to the irrigators. The funds derived from the sale of bonds for these irrigation enterprises covered the cost of the water wheels, generators, and distributing lines.

The success of the Carite power plant built in connection with the original Guayama Irrigation System, whose revenues have steadily increased to over $300,000 annually, aroused such enthusiasm for general hydroelectric development that special laws were enacted in 1925 and 1927 to promote this object. The latter statute levies a special tax of one mill on the assessed value of all real property to create a "special fund for the development and use of the water powers of the island of Porto Rico." This fund is at the disposal of the Commissioner of the Interior for survey, plans, and construction of works for hydroelectric power and utilizing that power for agriculture, manufacturing, and municipal use. This includes the construction of reservoirs, tunnels, channels, pipes, hydroelectric plants, and transmission and distribution lines. Preference is to be given to works on the larger rivers furnishing the most electric power. Receipts from the sale of power are to be devoted to annual maintenance and operation and the remainder, if any, goes in the ratio of one-third to a special fund to continue the system and erect new plants, and two-thirds to the general revenues of the Island.

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[10] *El Mundo,* San Juan, P. R., June 8 and June 26, 1929.

The Commissioner of the Interior is given full power to appoint personnel, to make contracts for sale of electric power and water, to institute proceedings in eminent domain including real property and water rights, and in general to do whatever is necessary and otherwise lawful to accomplish the purpose of the act. A new policy is declared putting the government in the power business, and the Public Service Commission is enjoined to see that this policy is not impaired by grants or franchise to individuals or corporations. The yield of the hydroelectric one-mill tax and the expenditures from that service are given in the accompanying table:

THE HYDROELECTRIC ONE-MILL TAX

Year	Tax Yield	Expenditures		
		Toro Negro	Surveys	Total
1925-26	$106,385.34	$2,551.29	$5,724.08	$8,275.37
1926-27	296,161.67	28,401.79	26,560.27	54,962.06
1927-28	337,775.01	247,486.69	44,091.29	291,577.98
Total	$740,322.02	$278,439.77	$76,375.64	$354,815.14

The above charges do not include purchases of materials and supplies to the amount of $219,208.77 and certain other disbursements—the total being $647,089.95, leaving a balance in the one-mill fund of $93,232.07.

The development now under construction by the use of this fund provides for impounding the upper waters of the Toro Negro and Matrullas rivers and diverting them with the off-flow of Dona Juana gulch through Toro Negro tunnel to the south slope of the Island, whence they are conducted through a pipe 7,000 feet long with a fall of 1,650 feet to a power house near Villalba. From the power house the water will flow in the river Jacaguas to Lake Guayabo, whence it will be distributed for irrigation. There are many other small streams with rapid descent. These fluctuate widely in volume between times of drought and of destructive flood accompanying the hurricanes. The cost of developing power at each of these is necessarily great and probably would not be justified if it were not also possible to utilize the controlled water for irrigation.

Theoretically upward of 60,000 horsepower might be developed on the Island, distributed as follows:

Comerío	10,000	Río Guacio (approximately)	10,000
Río Blanco	10,000	Río Juaca “	6,000
Carite	4,000	Río Grande “	10,000
Toro Negro	6,000	Small plants “	2,000
Isabela	2,000		

Of this 60,000 horsepower, about one-half is already developed if the 7,000 horsepower now under construction at Rio Blanco is included, and the more easily available powers have already been put to use. The estimated cost of new enterprises is large, requiring an expenditure almost prohibitive. With the steadily decreasing cost of generating power from fuel, it is becoming more and more questionable whether it will pay to develop many more sites.

The demand for power, however, is steadily increasing; even if all the probable hydroelectric sites were put to use, there would still be necessity for power generated by steam. Moreover, even if all the water power of reasonable cost should be utilized and interconnected, auxiliary or stand-by steam plants would still be required to take care of peak loads during times of drought.

Assuming an installed capacity of 60,000 horsepower, which is probably the maximum feasible, and a plant factor of 40 per cent annual current production would be about 200 million kilowatt hours, compared with a present generation of approximately 60 millions. To attain this, however, auxiliary steam plants would be required, and the cost of their installation and maintenance would be largely chargeable to the secondary power generated at hydroelectric plants. Present hydroelectric stations have cost upon an average between $250 and $300 per horsepower, and the cost of hydroelectric power at the bussboard is estimated at from 1 to 1.5 cents per kilowatt hour, including first cost, operation, and maintenance expenses. It is doubtful, however, if any considerable amount of primary hydroelectric power can be produced at this rate, if consideration is given to water storage costs. Secondary power would, of course, have to take into account the steam plant costs necessary to insure continuity of service. For comparison with this it is estimated that large modern steam electric units located where water supply is ample can produce this energy at a cost of one cent or even less per kilowatt hour, taking into account depreciation, taxes, and other property items.

Fuel generated power will dominate in the long run. In a country where hurricanes are recurrent at irregular intervals, it is necessary that well equipped fuel stations be located at points near centers of population. Long transmission lines, if destroyed by the hurricane, cannot be quickly replaced; local stations are then of inestimable value. There is little doubt, therefore, that fuel power must dominate. While there may be an increase in water power, its effective use will depend upon the building of central stations burning coal or oil and so planned as to carry a certain part of the load. Water powers must be considered more and more as auxiliaries to take care of peak loads. This can be done with economy to the extent to which reservoir capacities are provided at reasonable cost.

Oil is practically the only fuel in use at present. When the oil supply diminishes or the price increases coal will doubtless be brought in from Norfolk or other points. The increasing use of pulverized coal and the economies resulting from improved methods of firing make it possible to anticipate the enlargement and steady expansion of steam power.

In addition to the power plants of the Insular government and others conducted by the municipalities, three private corporations are producing current commercially. The largest and most important public service corporation on the Island is the Porto Rico Railway Light and Power Company, financed largely by Canadian capital. It operates a trolley system in San Juan, but from the standpoint of the public, especially since busses handle most of the urban and suburban traffic, its most important function is to furnish electric light and power to various municipalities, corporations, and individuals. Power for operating the trolley and for supplying electrical energy to outlying territory is derived largely from an oil-burning steam plant in the eastern portion of the city of San Juan known as Santurce.

The first turbo-generator installation in Santurce was put into operation in 1907 with a rated capacity of 500 kilowatts. In 1912 and in 1922 additional units were installed, making the total rated capacity of the steam plant approximately 4,000 horsepower. Its yearly output varies, however, with water conditions at this company's hydroelectric plant on the Comerio River. The heaviest years so far have been the dry season of 1925-26, with a total annual production of 13,000,000 kilowatt hours, and 1928 with 14,324,000 kilowatt hours.

The original installation of the company's Comerío hydroelectric plant consisted of four I. P. Morris water wheels rated at 750 horsepower each coupled to four General Electric generators. In 1912 due to the increase in load it was necessary to install a new unit at this point. At the same time construction was started on the power development known as power house No. 2. This work was completed in 1913. The maximum production obtained from these plants occurred in 1927 when 27,000,000 kilowatt hours were delivered to the transmission system, while in 1925, a very dry year, only 14,600,000 kilowatt hours were generated, showing a wide annual variation of river flow. The capacity of Plant No. 1 was reduced by the hurricane, but in the spring of 1930 a new unit will be installed replacing the four old I. P. Morris turbines, thus bringing the plant back to its original capacity.

The drainage area of the La Plata River supplying Comerío plants is 133 square miles. The minimum flow, which on one occasion lasted almost a month, is approximately 50 second feet. During the San Felipe hurricane, using the dam as a weir, the flow was estimated to be 100,000 second feet.

The same company's Río Blanco project provides for a lower and upper development in series. The lower development with an installed capacity of 7,000 horsepower is now under construction. The probable output of the total installation based on careful hydrographic records and elaborate studies will be in the neighborhood of 30,000,000 kilowatt hours a year, but this is only possible because of steam auxiliary.

The Río Blanco is being built by the Porto Rico Railway Light and Power Company under a franchise granted in 1928. This has been drawn with the intent of permitting the people of Porto Rico at some time in the future to take possession of the plant on payment of cost. Thus it may ultimately become part of the publicly owned hydroelectric system under construction by the Insular officials.

The terms of this agreement are such that the company is permitted to exercise the right of eminent domain to acquire possession of lands and waters near the head of Río Blanco. This river receives its water from lands on the south side of Luquillo mountains largely included within the national forest and it flows into the sea on the east side of the Island. The company is to pay an annual royalty of $25,000 and agrees at the end of ten years to sell the plant and appurtenances, not including the transmission lines, at a price to be equal to the original cost plus improvements, less depreciation.

The Ponce Electric Company, which is under Stone and Webster management, has a steam electric plant at Ponce with a capacity of 3,400 kilowatt volt amperes. A line extends from its generating station to Sabana Grande on the west and to a connection with the lines coming from the government's Carite plants on the east. A branch has also been built north to the Villalba plant of the Toro Negro project.

The third public service corporation selling electric current to the public is the Mayagüez Light, Power and Ice Company, which has a steam plant of 1,350 kilowatt volt ampere capacity. Lines carrying 22,000 volts extend south and southeast to San Germán, and a gap remains between these and the lines farther east.

In sum, at the present time high tension lines fed by three major steam plants and four major hydroelectric plants with one or more power houses each extend continuously from a point 27 miles east of San Juan to most of the eastern coastal district and by trunk lines across the Island and along the southern coast to the neighborhood of Mayagüez, where a second connecting link remains to be built to take them past that city to a junction with the new Isabela project in the northwestern section of the Island. A small but efficient municipal plant at Arecibo on the northern coast will eventually be connected with this service giving a belt line carrying at or above 20,000 volts entirely around the Island.

Reverting again to the question of cost, figures obtained from managers of various power plants indicate that the present cost of current generated by steam ranges from two cents to four cents per kilowatt hour measured at the bussboards, and that if water storage costs are distributed between power and irrigation current can be generated by the largest government hydroelectric plants at one cent per kilowatt hour. As yet economies to be obtained by using steam and water to the maximum advantage in co-operation have not been realized. For example, under full head the Carite power plant can generate 16,000,000 kilowatt hours a year. It is estimated, however, that a steam or Diesel plant costing about $200,000 would be employed as an auxiliary to boost the output of this plant to 21,000,000 kilowatt hours per annum. It should be borne in mind, however, that the relatively cheap projects have already been completed and that future hydroelectric plants must expect to operate on a higher investment basis.

The greater part of the power now generated by government owned plants is used for pumping water for irrigation, but an increasing demand exists for power in manufacturing and for multiplying uses in the homes, such as lighting, cooking, and serving other household conveniences. Until economic conditions improve, however, the demand for electricity for home use will be slow in growing. The total number of people receiving electric service at present is estimated at approximately 50,000, a small number in a population of a million and a half. Assuming five persons to a family this would mean that only one in six families is as yet receiving electric service.

We see no necessity for any radical change in policy with reference to water power in the Island.[11] An act, passed April 29, 1927, states that: "The development and operation by the people of Porto Rico of such water resources as are susceptible of economic development is a public necessity." In view of the extensive development of water power that has occurred in recent years and of the fact that rates are controlled by an efficient Public Service Commission, we do not believe that the necessity for government ownership has been fully demonstrated. On the other hand, there is danger that an extensive program of development under government auspices would result in an increase of taxes, without corresponding benefits to the public.

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[11] Compare, however, the tax recommendation on page 283.

The public officials in charge of this work are able and enthusiastic, comparing favorably with men in similar positions in private enterprises. It is important that these officials make a thorough study of the possibilities of further utilization of Insular water power resources, with a view to facilitating their development as rapidly as economic conditions permit.

VIII. HOMESTEADS AND WORKINGMEN'S SUBURBS

Moved by the prevailing unemployment and by popular pressure, the legislature of Porto Rico in 1915 enacted a "Homestead Law" creating a commission, of which the Commissioner of the Interior is chairman, authorized to take over certain public lands, and to buy other lands, to subdivide them, and to lease them with the privilege of purchase to deserving occupiers. The same body was also authorized to build and rent or sell on a rental-purchase plan workingmen's cottages on tracts of land owned or to be bought by the government in the suburbs of San Juan and one or two other of the larger towns. Funds were provided by Insular loan for this work.

As a result of 14 years' activity some 900 farmers are now settled, upon the whole successfully, on small holdings in different parts of the Island, and workingmen's suburbs have been built or provided for in several places. The most notable of the latter is the "Barrio Obrero" in the edge of Santurce, the principal suburb of San Juan, where 492 homes for laborers, mechanics, and low salaried workers have been erected, and a park and various communal conveniences have been supplied to a large group of families living under better conditions than are usually found in the workingmen's quarters of tropical cities. These houses rent at from $3 to $12 a month, according to their size, construction, and situation. Difficulty has been experienced in collecting rents when due, and from a strictly commercial standpoint the experiment has hardly succeeded; but the social results have been excellent.

In connection with the small farm enterprises of the Commission, we find that with one or two exceptions the lands available for subdivision have not been of the first quality, and it is an old adage that poor land makes poor farmers. From 10 to 12 per cent of those who have taken up holdings have forfeited them by failure to meet payments when due; and from 20 to 25 per cent of the original purchasers have transferred their rights to other parties. The collection of monthly payments is lagging because the Commission has not been willing to enforce the forfeiture clause in its contracts with occupiers. This is quite in line with experience elsewhere.

IX. RAILWAYS

All the railways in Porto Rico are private enterprises, but since they represent the principal engineering works constructed and operated in the Island apart from those of the government they are briefly considered at this place. Topographical and economic considerations have combined to prevent building lines across the Island or penetrating the interior. The principal system, that of the American Railroad Company, has a mileage of 408 kilometers and extends around the coast, via the western end of the Island, from San Juan to Guayma, about 180 miles. It operates in addition a stub to Carolina, a town situated on the north coast a short distance east of the capital. Two smaller lines, likewise operating under a public franchise, serve principally sugar plantations in the eastern end of the Island. Plantation railways and a few short private lines connect with the main system.

Although passenger business has recently increased and more than half a million travelers patronized the American Railroad Company during the last year for which there are available reports, these lines owe their survival in the face of truck and automobile competition to the sugar industry, which furnishes more than 86 per cent of their freight. They are owned largely by sugar growers, but their rates are fixed by the Insular Public Service Commission.

This Commission has recommended that the smaller roads under its jurisdiction be relieved of their charter obligation to carry passengers. The railway of the Fajardo Development Company, one of the smaller systems mentioned, spent in 1927 upon this service over nine thousand dollars and received only $323 revenue from it in return. Public patronage is better on the longer line connecting the larger towns, and a night train carrying a sleeping car operates between San Juan and Ponce. Manufacturers in the coast cities, especially Mayagüez, profit considerably from the express services afforded by this line, which enables them to make quick shipments to New York via San Juan. No refrigerator cars are operated as yet, but they may prove a great value to the orchard and truck industries eventually when fruit and vegetable growing have extended to sections of the Island distant from the capital.

By way of general conclusion, the general program for the development of public works in the Island is satisfactory, and the progress made has been excellent, fully keeping pace with the capacity of the people to finance such improvements. Attention should, however, be given to the possibilities of dovetailing programs of public work construction with periods of excessive unemployment, seasonal or otherwise. There is, moreover, a genuine need for additional trained personnel, particularly for the operation and maintenance of municipal systems of public works.

CHAPTER XIV

BANKING AND CREDIT FACILITIES

It is a commonplace that economic progress is dependent in a vital way upon a soundly organized financial system adapted to the varying requirements of commerce and industry, and to the promotion of savings and investment. In this chapter we shall survey Porto Rico's banking and credit organization with a view to answering the following questions:

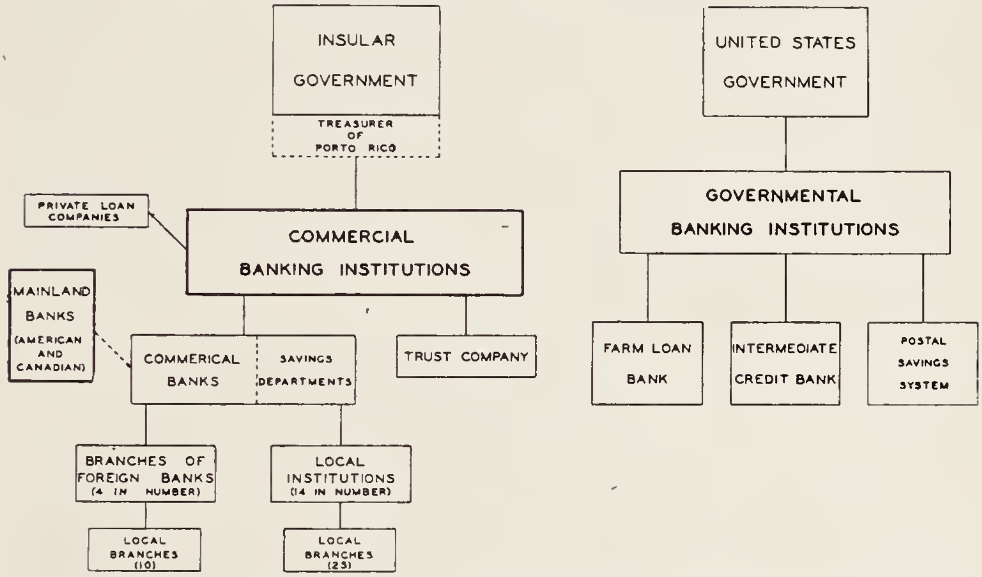
1. Does Porto Rico possess the several types of financial institutions and agencies required by a modern state?
2. Are there satisfactory facilities for the encouragement of thrift and the effective utilization of savings?
3. Are the commercial banking institutions satisfactorily controlled?
4. Is the supply of short-term commercial credit elastic for seasonal and extraordinary requirements?
5. Are short-term interest rates exorbitant?
6. Are other credit facilities adequate?
7. Is an Insular bank desirable?

I. PORTO RICO'S FINANCIAL FACILITIES

Porto Rico's banking history really dates from the American occupation in 1898. The commercial activity of the self-contained economic organization of the Island prior to that time was of such small and uncertain volume that attempts to establish banking operations met with failure. In 1850 the London Colonial Bank opened a bank at San Juan, but discontinued business within three years. Some years later a local bank was organized, which ended in bankruptcy in 1879. In 1877 the *Sociedad Anónima de Crédito Mercantil* (Commercial Credit Corporation) was established and became Porto Rico's first successful banking house. This corporation, following various reorganizations, is at present operating as the *Banco Comercial de Puerto Rico.*

The *Banco Territorial y Agrícola* was organized in the nineties to strengthen the territorial credit and to further agricultural industry. The *Banco Popular* and the *Banco Crédito y Ahorro* were also organized at the very close of the Spanish régime. The relative insignificance of the Island's banking resources at the time of the American occupation is indicated by the consolidated balance sheets of these banks on June 30, 1898, which showed capital, surplus, and undivided profits amounting to only $1,115,957, with total deposits of $1,838,783.

Banking Organization of Porto Rico


INSULAR GOVERNMENT
TREASURER OF PORTO RICO
UNITED STATES GOVERNMENT
PRIVATE LOAN COMPANIES
COMMERCIAL BANKING INSTITUTIONS
GOVERNMENTAL BANKING INSTITUTIONS
MAINLAND BANKS (AMERICAN AND CANADIAN)
COMMERICAL BANKS
SAVINGS DEPARTMENTS
TRUST COMPANY
FARM LOAN BANK
INTERMEDIATE CREDIT BANK
POSTAL SAVINGS SYSTEM
BRANCHES OF FOREIGN BANKS (4 IN NUMBER)
LOCAL INSTITUTIONS (14 IN NUMBER)
LOCAL BRANCHES (10)
LOCAL BRANCHES (25)

The present banking organization of Porto Rico is outlined on the chart shown above. It will be noted that there are two principal groups of institutions. The first group, commercial banking institutions, is under the supervision of the Treasurer of Porto Rico, and the second group is under the direct control of United States governmental agencies. The former institutions minister to short-term credit requirements, and the latter are concerned on the one hand with promoting savings, and on the other with providing longer term credit facilities.

There are 14 *domestic* commercial banks and four branches of "foreign" institutions; namely, the American Colonial

Bank, organized in 1899 under a charter from the State of West Virginia, and the Bank of Nova Scotia, the Royal Bank of Canada, and the National City Bank of New York, all of which have been organized since the first decade of the American occupation. Eight of the 18 banks are located in San Juan and four in Ponce, the remainder being distributed among the smaller cities of the Island. These 18 commercial banks possess 35 branches, ten of which are branches of the four foreign banks.

The Porto Rican branches of foreign banks are naturally able to draw upon the resources of the parent bank as occasion demands. The local Porto Rican banks, moreover, maintain correspondent relations with institutions on the mainland. At the same time there is a very large volume of lending direct by banks of continental United States to corporations operating in Porto Rico. In consequence, the economic and financial system of Porto Rico is closely linked with the financial system of the North American continent. The connection between Porto Rican banks and the Federal Reserve system is, however, only an indirect one.

GROWTH OF COMMERCIAL BANKING IN PORTO RICO

Selected Balance Sheet Items for Indicated Years (ending June 30), 1898-1929 [a]

Balance Sheet Items	1898	1908 [b]	1918	1928	1929
Resources:	**$6,283,464**	**10,846,856**	**31,946,875**	**78,128,784**	**87,424,216**
Cash	$1,772,822	$ 2,203,618	6,009,762	5,426,621	5,094,640
Loans and Discounts	2,805,682	3,936,717	17,553,443	54,927,963	64,928,148
Other	1,704,960	4,706,521	8,383,670	17,774,200	17,401,428
Liabilities:	**$6,283,464**	**10,846,856**	**31,946,875**	**78,128,784**	**87,424,216**
Aggregate Deposits	1,838,783	6,454,854	26,427,135	53,693,396	59,150,075
Capital and Surplus	1,053,165	2,592,294	3,449,308	11,184,539	11,020,843
Other	3,391,516	1,799,708	2,070,432	13,250,849	17,253,298

[a] Sources: 1898, *Gazeta Oficial de Puerto Rico, 1897-98;* 1908-28, Annual *Reports* of the Governors of Porto Rico (see Treasurers *Report* in same); 1929, Excerpt from *Report* of Treasurer of Porto Rico to Governor of Porto Rico for year ending June 30, 1929.

[b] Total Resources, figures differ from Governor's *Reports* by small amounts for years 1908-29 because of deductions of current items, i.e., "taxes" and "expense account" items.

The expansion of commercial banking since the beginning of the American occupation is shown by the foregoing table, which gives the principal items of a consolidated statement for all commercial banks operating in Porto Rico. The capital item, however, includes only the Porto Rican banks and the American Colonial Bank. The other foreign banks do not report the capital of Porto Rican branches separately.[1]

About 60 per cent of the capital of commercial banks operating in Porto Rico is owned outside the Island. The bulk of the capital of the four foreign banks operating in Porto Rico, which together have combined resources amounting to 50.2 per cent of the total commercial banking resources of the Island, is owned abroad.[2] The capital of the American Colonial Bank is owned outside the Island to the extent of 85.8 per cent, all of the capital of the branch of the National City is owned abroad, and the Royal Bank of Canada and the Bank of Nova Scotia have only negligible amounts of capital owned in Porto Rico.[3] Taking the foreign banks as a group, the data indicate that something like 95 per cent of their capital is owned outside of Porto Rico. The local banks report 26.1 per cent of their capital stock as owned outside the Island.[4] As a whole, therefore, we may say that approximately 60 per cent of the capital is owned abroad.

In addition to the regular commercial banks and their branches, there exist in Porto Rico a number of private loan companies which extend credit for a variety of purposes. Export concerns and traders also extend a great deal of credit, but since they in turn borrow from either Porto Rican or continental banks, they are not listed as banking agencies.[5] There is also some lending by individuals of means who place their loans with individual borrowers without the intermediation of banking institutions. No data are available, however, as to the extent of such types of lending operations.

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[1] In 1928 the National City Bank of New York reported $350,000 capital in Porto Rico.

[2] This figure was obtained from a questionnaire filled out for us by all commercial banks operating in Porto Rico on December 31, 1928.

[3] $5,100 for the Bank of Nova Scotia, and $79,300 for the Royal Bank of Canada.

[4] In answer to our special questionnaire.

[5] See discussion of agricultural credit, pages 393-97, and 504.

The Federal Intermediate Credit and Federal Farm Loan banks, indicated on the chart on page 375, are discussed in Section V. below.

There are no savings banks in Porto Rico separately organized as such. The commercial banks, however, typically have savings departments, a practice which is in conformity with recent developments in continental United States. On June 30, 1929, these departments had 61,866 individual depositors, whose accounts aggregate $14,643,200, an average of about $237 per depositor.[6]

A postal savings system has been in operation for some years and the number of offices in 1928 accepting savings deposits was 54. The development of this system has, however, been disappointing as is evidenced by the following figures. The number of depositors on June 30, 1918 was 1,655, with aggregate savings of $105,440; on June 30, 1927, the number had increased to only 1,834, and the aggregate of the accounts to $159,668. At the end of 1928, following the hurricane, the number of depositors was reduced to 1,563, and the aggregate savings to $154,795.

Trust companies were not provided for under the laws of Porto Rico until 1925. In April of that year a Trust Company Law was passed which provided that a company might be organized by a group of seven or more people and with a paid-in capital of not less than $100,000. Foreign trust companies are definitely barred from exercising trust functions in Porto Rico. Under the new law the American Colonial Trust Company began operations at San Juan in September, 1928. On June 30, 1929, its capital and surplus was reported as $110,000, and total resources as $150,579.[7] Its chief business, as shown by the balance sheet, has thus far been the making of loans on real estate mortgages, which amounted on the above date to $110,438.

This trust company has opened up a field for investment of savings not hitherto available in Porto Rico, the importance of which may be indicated by the fact that on June 30, 1928, there were as many as 5,048 savings bank deposits in excess of $1,000, averaging as much as $1,630.57 per account.[8] These accounts which by clearing house agreement draw interest at 3 per cent or less, are of sufficient size to be invested at much more remunerative rates.

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[6] Treasurer, *Report*, June 30, 1929.

[7] *Ibid.*

Life insurance in Porto Rico has had a considerable development. There are seven companies operating in the Island, three of which are Canadian and four American. The value of the whole life, endowment, and other policies in force at the end of 1928 was $29,591,958, the gross annual premiums on which amounted to $1,497,150.[9] The accumulations of savings through the insurance method are thus comparable in extent with the direct savings effected through the postal savings banks and the savings departments of the commercial institutions.

We are now in a position to answer the first two of the questions raised above. Porto Rico does now possess nearly all of the types of financial institutions and agencies required. While there is no stock market, or curb exchange, the existence of one would not be warranted until such time as a larger volume of securities becomes available for trading. In fact one was started some years ago and failed for lack of business.

The weak spot appears to be the absence of adequate investment agencies which would bring local lenders into ready touch with borrowers. Aside from the trust company recently organized, there are only two or three small agencies which deal in securities. The significance of this lack of investment facilities can best be brought out in connection with the second question, namely, the encouragement of thrift.

There is undoubtedly room for improvement in connection with the facilitation of savings and the encouragement of thrift. In the first place, the Postal Savings system should be improved and extended to additional communities. While there are now 54 offices which accept postal savings, there are still a good many districts where no savings facilities of any kind exist. The most important service of the Postal Savings system is to provide a temporary depository for small savings, which in a great many cases represent money which is being accumulated to meet principal and interest payments on loans and mortgages. Faced with pressing immediate wants, and somewhat improvident in habits, the typical Porto Rican finds it difficult to retain possession of these small accumulations until the date when an interest or principal payment is due. It is highly important, therefore, that the Postal Savings system should be extended to all parts of the Island as soon as possible, and be improved in the communities where it already exists. A handicap to its full use as well as to its extension has been the fact that the service has had to be rendered by the local postmaster without compensation for the extra labor involved. The United States postal authorities, at relatively small expense, could give sufficient remuneration to local postmasters to bring about a universal Postal Savings system. As a long run matter, no development is of greater significance than the promotion of individual thrift among the masses of the people.[10]

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[8] Shown by returns in special questionnaire.

[9] See *Porto Rican Insurance Report*, 1928-29, pp. 79-81.

In the second place, the development of trust companies and other investment institutions should be fostered. It was pointed out above that there are a good many individual investors who find no ready market in which to place their funds, and that many of the savings bank accounts are of relatively large size. The explanation of the low rates at which the banks are able to procure savings appears to lie in the fact that the Island has had no effective investment market facilities whereby individuals with money to invest can quickly and conveniently get in touch with those who have money to lend. The development of trust company and mortgage agencies which will open up investment opportunities should, through enabling investors to obtain substantially higher rates than now prevail, greatly stimulate the accumulation of savings.

II. THE REGULATION OF COMMERCIAL BANKING

All commercial banks in the Island, including the branches of foreign institutions, are under the direct supervision of the Treasurer of Porto Rico. The Treasurer's powers in connection with banking are fixed by the Insular Banking Law,[11] which provides in detail for the organization, operation, and supervision of commercial banking institutions. The principal provisions of the law may be summarized as follows:

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[10] At one sugar plantation headquarters energetic encouragement of postal savings has in time past resulted in a marked increase in the number of depositors and in aggregate deposits.

Organization. Any group of five or more people of full legal capacity may organize a bank in Porto Rico. Its directors must be bona fide residents of the Island, and at least $3,000 of the minimum authorized capital stock of $10,000 must be paid in before the bank legally begins operations. In the case of banks with an authorized capital stock exceeding $100,000 the law requires that at least 25 per cent must be paid in before the bank commences business. Shareholders are not compelled to assume a double liability. Each bank is, however, required to devote at least 10 per cent of its annual net profits to the creation of a surplus account until such account equals 50 per cent of the paid-in capital. Beyond 50 per cent, the formation of a surplus is at the discretion of the shareholders. Banking corporations organized under the laws of "any other Terirtory or State, or of the United States, or of any Foreign Country" are permitted to establish branches and do business in Porto Rico, provided that such parent corporations are operating in the place of their incorporation.

Powers and Restrictions. Banks organized under the Porto Rican law are permitted to establish branches in Porto Rico, in the United States, and in foreign countries. The law also makes specific provision for the operation of savings departments.

The legal reserve required against demand liabilities was originally established at 25 per cent, but an amendment in 1929 reduces the requirements to 20 per cent of demand liabilities.[12] The legal reserve is composed as follows: (1) At least 6.33 per cent must consist of lawful money of the United States; (2) not more than 3.67 per cent may consist of checks on banks or trust companies located in any part of the Island, to be presented for collection on the morning following the day on which they are received; (3) the remainder may consist of money deposited in other banks, provided such deposits are definitely authorized by the Treasurer of Porto Rico and are subject to immediate collection. These commercial banks have the usual powers of purchasing, selling, discounting, and negotiating bills of exchange and other negotiable paper. They may make loans on goods in warehouses, on standing crops, or on personal collateral with one or more signatures, but no loans shall be made for a period longer than six months. They may buy bonds of the government of the United States, of states or municipalities in the United States, of the Insular government, and of the municipalities of the Island. They may issue mortgage bonds or obligations secured by real property, but they may not acquire or hold real property for investment purposes. They may also make loans or advances to the Insular government, to municipal corporations, or to other dependencies of the Insular government. The restrictions on the extent of loans to any one borrower, making loans to officers, directors, etc., are similar to those obtaining under the National Banking Law of the United States.

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[11] This law is termed "An Act Regulating Banks and Banking in Porto Rico and Fixing the Powers of the Treasurer of Porto Rico," Act No. 18, approved September 10, 1923; amended by Act No. 68, 1925, and Act No. 28, 1929.

[12] Demand liabilities are defined by the Banking Law as "all such obligations as a bank is obliged to pay within a term not longer than three days." Deposits of Insular, municipal, or Federal governments, secured by actual collateral, are not included in demand obligations.

Supervision. Foreign and local commercial banks and other branches are subject to actual inspection by a bank examiner appointed by and responsible to the Insular Treasurer. If an inspection reveals an unsatisfactory condition, the Treasurer may recommend to the Attorney General of Porto Rico that the bank be declared in a state of liquidation, or that it be placed in the hands of receivers. The Treasurer's Office also requires a monthly report of operations from all commercial banks doing business in Porto Rico.

Appraisal of the Regulations. The provision of the law which enables banks to commence operations with a paid-in capital as low as $3,000 would make possible the establishment of a large number of very small institutions. Such a development, has, however, not occurred. Excepting for one or two small institutions in Ponce, the existing banks are all of substantial size, the total paid-in capital ranging from a minimum of $43,060 in the case of the *Banco Agrícola de Aguadilla* to $1,915,500 for the *Banco Comercial de Puerto Rico.*

In place of a large number of small banks, we have a small number of good-sized institutions having numerous local branches—a desirable situation. Bank failures, have, moreover, been relatively few even at times of acute economic depression.

The legal reserve provisions must be regarded as reasonably adequate. The 20 per cent reserve requirement is larger than is stipulated for United States banks which are members of the Federal Reserve system, and larger than is typically required for local state institutions. The provision permitting a portion of the reserves to be held with other banks is in accordance with sound banking practice. In case of heavy strain, the Porto Rican banks, by virtue of their correspondent relations, are enabled to supplement their funds from outside sources.

No important criticism can properly be levied against the loan provisions. The provisions concerning the purchase and sale of bonds of various types and for the issue of mortgage bonds or obligations secured by real property or by mortgages owned by the bank are in line with the integration movement in banking which has been going on in the United States and elsewhere in recent years, as is also the provision for the operation of savings departments in connection with commercial banking operations.

A study of the legal provisions affecting banking in Porto Rico and of the actual condition of the banks leads to an affirmative answer to the question whether the Porto Rican banking system is satisfactorily controlled.

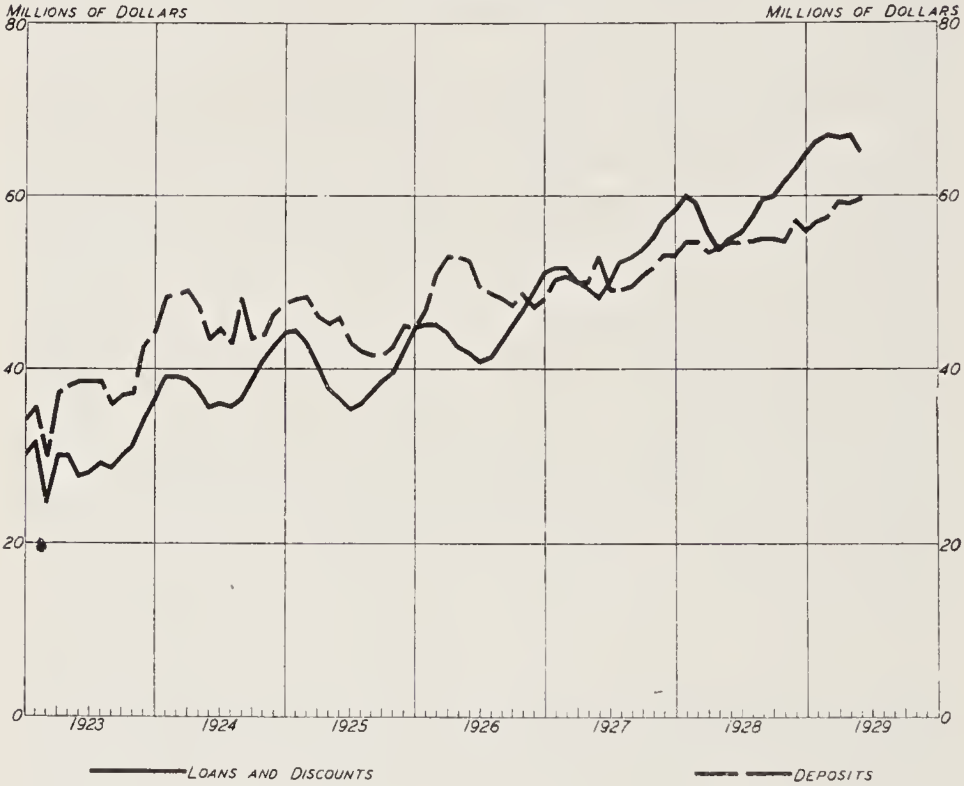
III. THE ELASTICITY OF COMMERCIAL CREDIT

The economic organization of Porto Rico is such as to require a high degree of flexibility in the supply of credit and currency. The dominant economic activities of the Island are the production of sugar, tobacco, fruit, and coffee and the manufacture of textile materials. The fruit business is so organized as to require comparatively little banking accommodation, and the financing of coffee by the commercial banks has been declining in importance in recent years, in part because of the decline of coffee production, and in part because some of its financing has been taken over by the Intermediate

Credit Bank. Accordingly, sugar and tobacco are the two industries which require the largest volume of commercial banking accommodations.[13]

Since these basic crops are seasonal in character, a satisfactory banking system should provide a moderate amount of credit facilities during the crop-growing season, be capable of expanding the supply greatly during the harvest and crop-moving period, following which there should be a practical liquidation of outstanding obligations. The chart below indicates the seasonal variation in loans and discounts and deposits, from January, 1923, to June 30, 1929.

Seasonal Variations in Loans and Discounts, and Deposits, 1923-1929



The loan and discount and the deposit lines indicate that the supply of credit is well adapted to seasonal requirements. During the "dead season" of the early summer, loans are at the minimum and deposits at the peak. Beginning in August, the loans increase with each succeeding month, until the peak is reached in February, after which liquidation proceeds rapidly until midsummer. It should be noted, however, that since the middle of 1927 there has been an increasing divergence between the loan and discount and the deposit lines, which indicates a growing dependence upon outside sources of funds.

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[13] The needle trade manufacturer also requires considerable banking accommodation.

The reader should bear in mind that the loans and discounts shown on this chart are only those made by banks operating in Porto Rico. In addition, large credit accommodations are procured by Porto Rican producers, particularly of sugar and tobacco, from sources outside the Island, through the intermediation of American companies operating in Porto Rico. While the data with reference to the extent of such financing from continental United States are not precise, we estimate that somewhere between 25 per cent to 35 per cent of all the credit extended in Porto Rico is thus obtained abroad. In sugar and tobacco, it would probably be as much as one-third of the total, and in power and light and manufacturing activities much the greater part is obtained abroad.

In addition to the normal seasonal credit requirements in Porto Rico, hurricane disasters occasionally give rise to extraordinary needs. The destructive hurricane of September, 1928, for example, necessitated not only financial aid administered through such agencies as the Federal government and the Red Cross, but the banks also found it necessary to grant extensions of outstanding loans and also to extend additional credits for businesses and individuals who were in distress. The maintenance of loans and discounts at an exceptionally high level as compared with deposits in 1928-29, is to be explained in considerable degree by the added credit requirements imposed by the hurricane disaster. It will be observed that the loans and discounts line, instead of falling in February, as was normally the case, continued at the peak until the first of May, and at the end of June was still above the level of January.

The foregoing analysis shows conclusively that the Porto Rican credit system has been a very elastic one, admirably responsive to normal seasonal requirements, and adapted to meeting the needs of periods of acute strain. The steady expansion of the total of loans and discounts since 1927, however, and the larger resort to borrowing outside the Island, indicate that banking facilities on the Island have been becoming less adequate.

IV. SHORT-TERM INTEREST RATES IN PORTO RICO

In view of the marked seasonal variations in the demand for funds in Porto Rico, one would naturally assume that short-time interest rates would show considerable fluctuation. As a matter of fact, interest rates are the same at all periods of the year, being controlled by clearing house agreement and varying only with the credit standing of different borrowers. The Porto Rican clearing houses at San Juan and Ponce have, like those in continental United States, adopted numerous regulations believed to be in the interests of the banks as a group. In the United States, the clearing house regulations have been confined to such matters as the establishment of uniform charges for exchange and collections and interest on deposits. There has never been any agreement as to interest rates on loans, the making of loans being left as a field for open competition. But in Porto Rico the agreements have been extended to interest on loans as well.

The interest rates agreed upon by Porto Rican banks are as follows: (1) Up to $2,000 (not inclusive) 10 per cent; from $2,000 to $50,000 (not inclusive) 9 per cent; $50,000 and over 8 per cent. These rates do not apply to loans made by one bank in the clearing house association to another. To banks not members of the clearing house, the rates shall be not less than 6 per cent. An exception is made in the case of loans to American exporting houses. It is provided that if an American exporter draws a trade acceptance on a Porto Rican importer and presents this for discount with a Porto Rican bank, the rate may be as low as 6 per cent, plus commissions. But if the importer seeks to discount such an acceptance, the regular domestic rate prevails. Exception is also made for loans to the United States government, to the Insular government, or to any political subdivision thereof.

The purpose of the establishment of uniform rates on collections, exchange, and deposits by clearing houses in the United States was to escape the ill effects of the cut-throat competition that had prevailed for many years.[14] Such agreements have never been open to serious criticism on the ground that they led to exorbitant charges; on the contrary they have tended to prevent competitive abuses and thus to safeguard and strengthen the banking system. The explanation of the clearing house agreements in Porto Rico in connection with interest on deposits, collection, exchange charges, etc., is in general the same as that in the United States.

Moreover, the reason assigned for regulating interest rates on loans is the same, namely, to prevent the evils of a too keen competition among the banks for loans. For some years the supply of loanable funds was so abundant that the shrewd Latin borrower was able to play off one bank against another, and thus obtain bargain rates. The relative abundance of loanable funds is indicated by the chart on page 384. With a view to preventing unremunerative rates, and also for the purpose of preventing the wear and tear of endless bargaining with would-be borrowers, the clearing house banks felt constrained to extend their agreements to the making of interest rates.[15]

Before attempting to pass judgment upon this clearing house practice, it is necessary to consider whether existing rates are to be regarded as unreasonably high. Light may be shed upon this question in two different ways: (1) By a comparison with rates in other regions of similar economic development; and (2) by considering the earnings of the banks.

The rate in Santo Domingo, which is subject to an interbank agreement,[16] is 10 per cent on all loans, except those to sugar companies, foreign insurance companies, and governments.

In Haiti, where there is no agreement covering interest charges,[17] the rates vary from 6 to 12 per cent, depending upon the class of business and the risk involved. In Cuba, where there is no clearing house agreement on interest rates, the rates average 8 per cent and vary only 1 or 2 per cent therefrom. It will be seen that the rates in Porto Rico are practically the same as those in other countries similarly situated. They are, moreover, comparable to those which have quite generally prevailed, until recent years, in the less developed regions of the United States.[18]

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[14] United States clearing houses began the development of such agreements about 30 years ago.

[15] The National City Bank has withdrawn from the clearing house, but nevertheless retains the interest rate schedule.

[16] The only banks operating in Santo Domingo are the National City Bank of New York, the Royal Bank of Canada, and the Bank of Nova Scotia.

Another comparison that may be made is the rate charged by New York banks when making loans in Porto Rico. Companies operating in Porto Rico (typically American companies) which have direct banking connections in New York can borrow there at prevailing rates, say at 6 per cent. These companies, it will be borne in mind, are usually those of the highest credit standing. Offhand, it would appear that there is a differential of 2 per cent; but the difference is really less than this by virtue of the fact that the New York banks require the maintenance of an average balance equal to approximately 20 per cent of the amount of the loan, whereas Porto Rican banks do not require the maintenance of any balance. On the other hand, the New York banks pay 2 per cent on the average deposit, whereas the Porto Rican banks, as we have seen, do not pay any interest on current accounts. In effect, therefore, the Porto Rican company which borrows $100,000 in New York pays 6 per cent on that amount, and has the use, on the average, of only $80,000, receiving meanwhile 2 per cent on an average deposit account of $20,000. The real cost of money to the borrower is therefore about 7 per cent. At periods when money rates are lower in New York this over-all cost is of course proportionally reduced.

It is evident from these comparisons that the rates charged in Porto Rico cannot be regarded as exorbitant. Whether they might not be gradually reduced, remains for consideration. The existing level of rates is commonly attributed to the risks involved and to relatively high overhead costs for the volume of business done. With reference to the first contention, it is difficult to generalize. While industrial and commercial borrowers are as a rule small-scale operators, many of the agricultural borrowers operate on a much larger scale than is typical in most rural sections of the United States. It must be pointed out in this connection, however, that the largest of the farm borrowers, particularly in the sugar industry, borrow directly from banks on the mainland. The loans made to small producers and traders and to individuals for personal requirements—which loans bulk large in the portfolios of the local Porto Rican banks—must, however, be regarded as involving somewhat more risk than would be the case with similar loans in the United States proper.

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[17] The only banks operating in Haiti are the Royal Bank of Canada and the *Banque Nationale de la Republique*, which is a bank of issue and owned by the National City Bank of New York.

[18] Rates throughout the agricultural regions have ordinarily ranged from 8 to 10 or even 12 per cent. The development of the Farm Loan and Intermediate Credit systems in recent years has, however, tended to bring some reduction even in commercial banking rates.

The contention that overhead costs are high relatively to the volume of business is evidenced by a comparison of capital, surplus, and undivided profits with deposits, in Porto Rico and the United States. For the commercial banks of Porto Rico as a whole, the deposits are only 3.7 times the capital, undivided profits, and surplus, whereas for all commercial banks in the United States deposits are 6.2 times the capital resources.[19] This situation is primarily attributable to the necessity of maintaining larger reserves in proportion to deposits, by virtue of the fact that the banking system is somewhat less well organized and articulated than is the banking system of continental United States since the establishment of the Federal Reserve system. This clearly shows that banking resources are less effectively employed in the Island than on the mainland.

The earnings of Porto Rican banks have, as a rule, been very satisfactory. The questionnaire submitted to the banks shows that the eight local banks which reported for the year ending December 31, 1928, had net profits averaging 14.7 per cent on the capital stock, and 11.6 per cent on capital stock and

[19] Statements have been frequently made that deposits in Porto Rican banks are only about twice the capital resources as compared with from twelve to fifteen times in mainland banks. This may be true of individual instances but for the banks as a group the disparity is very much less, as the figures in the text show.

surplus combined.[20] One foreign bank reporting had net profits equal to 26.3 per cent of capital stock and 15.8 per cent of capital and surplus. Precise data for earlier years are not available, but the fact that the volume of business in the years immediately preceding compared favorably with that for 1928, warrants the conclusion that the earnings in 1928 may be regarded as typical. The fact that bank failures have been few in number supports the conclusion that the condition of Porto Rican banks is satisfactory.

We may now turn to a consideration of the clearing house agreement with reference to interest rates on loans. There are two issues involved here: (1) Whether there is economic justification for the practice of the Clearing House Association in maintaining interest rates at a minimum of from 8 to 10 per cent, and at the same time agreeing to pay no interest on current accounts and a maximum of 3 per cent on savings; and (2) whether the practice of establishing uniform interest rates to be charged by all the banks to the several classes of borrowers, is in the interest of the best banking and business development.

There does not appear to be any sound economic reason which would warrant the great disparity that exists between the rates paid by the banks on time deposits and the rates which they charge to borrowers. In the less developed regions of the United States, where loan rates have been as high as from 8 to 10 per cent, the interest rates on time deposits have typically been from 3 to 5 per cent. High rates in a given region, because of a scarcity of capital or relatively great risks, or both combined, may justify relatively high rates on loans, but, if so, they also justify relatively high rates on time deposits. As was indicated in Section I above, the lack of adequate investment facilities has tended to induce individuals with money to invest to deposit it in savings accounts even though the rates range from only 2 to 3 per cent. The development of better investment facilities, as recommended above, will promote thrift through enabling investors to obtain higher rates than those obtaining on savings accounts. But the banks should also seek to encourage savings and investment through offering as high interest rates on savings as is possible. In the long run, moreover, it will prove to the interest of the commercial banks to pay somewhat higher rates on savings; for, as other investment opportunities develop, they will not be able to act as intermediaries in the process of saving and investment, unless they offer inducements for the creation of savings deposits. In the light of a careful weighing of the factors in the situation, it is recommended that the maximum rate on savings be increased by the Clearing House Association from 3 to 4 per cent.

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[20] In the year 1929, however, the earnings of five local banks appear to have been considerably reduced. A confidential report indicates earnings equal to only about 7 per cent on the capital stock and surplus for the year. The decreased earnings are the result of two factors, both of which are temporary in character. The first was the hurricane, which adversely affected all economic activities in Porto Rico and resulted in an increased volume of bad debts and slow collections. The second was the high interest rates obtaining on the mainland during 1929. With the Porto Rican banks maintaining fixed rates to their borrowers and having to pay more for the funds procured outside, their margin was necessarily reduced. This situation has already been profoundly changed as a result of the stock market collapse and ensuing business and financial readjustment.

The agreement to pay no interest on current accounts is also open to serious question. It is true that Porto Rican borrowers seldom keep an average balance on deposit at the bank worthy of the name; and this fact has been cited above as evidence that the cost of money to the borrower in Porto Rico is not as much higher than the cost in New York as nominally appears to be the case. The paying of 2 per cent on current accounts above a stipulated minimum would, it is believed, gradually stimulate the development of such accounts, and this in turn would make it possible for the banks themselves to charge a somewhat smaller rate on loans. As the situation now stands, there is a vicious circle. The fact that the borrowers maintain no satisfactory average balance at the banks appears to make it necessary for the banks to charge higher rates than would otherwise be the case. In turn, the fact that the banks do not pay interest on current accounts means that there is no financial inducement to borrowers to maintain satisfactory balances. The only way to break this cycle is for the banks to offer an inducement by paying interest on current accounts, and then gradually to reduce rates on loans as conditions may warrant. We therefore recommend that the clearing house banks agree henceforth to pay 2 per cent interest on current accounts.

We also recommend that the clearing house abandon the policy of uniform minimum interest rates for the several classes of borrowers. While the adoption of this agreement appeared to be justifiable at the time as a means of checking the abuses of a too keen competition and thereby safeguarding the banking structure, it is not defensible as a long-run policy. The practice makes it impossible for any given bank to use its own best judgment in the making of rates in general, and also in the granting of special rates to individual borrowers of superior credit standing. Under the practice in vogue, each bank must charge every borrower, in the class from $2,000 up to but not including $50,000, at least 9 per cent, regardless of that bank's view as to the interest rate that is necessary, and regardless of the previous credit history of any particular borrower. Moreover, the agreement results in uniform rates throughout the year, regardless of the variations in the demand for and supply of credit at the different seasons. Such a system cannot in the long run insure the granting of credits at the lowest possible interest rates; and, what is even more important, it does not enable either the most efficient bank or the credit borrower of the highest standing to derive the rewards of business virtue.

In this connection it should be noted that the Federal Intermediate Credit Bank of Baltimore, which has a branch in Porto Rico (see discussion in following section) varies its discount rate on loans to Porto Rican banks and credit corporations in accordance with changing money market conditions, and in turn that the local intermediate credit agencies vary their rates to borrowers. In the five years from 1925 to 1929, for example, the discount rate of the Baltimore Intermediate Credit Bank has varied from 4½ to 6¼ per cent.[21]

This system of uniform interest rates was adopted at a time when the banking facilities of Porto Rico were so abundant as to place the borrower in a position to bargain with one bank as against another in connection with the rates on loans. But as the chart on page 384 indicates, the growing credit demands of Porto Rico have produced a marked change in this situation. The present time appears, therefore, to be a favorable one in which to abandon this practice.

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[21] Data furnished by Hugh S. Mackey, Manager of the Federal Intermediate Credit Bank of Baltimore.

V. INTERMEDIATE AND LONG-TERM CREDIT FACILITIES

Porto Rico is directly connected with the Federal Intermediate and Federal Farm Loan systems of the United States. The Federal Intermediate Credit system, it may be recalled, was established in 1923. The intermediate credit banks, twelve in number, are government institutions, with the Treasury obliged to subscribe to their capital stock, as may be needed, up to a maximum of $5,000,000 in the case of each bank. Funds are also obtained by the issue and sale of collateral trust debentures secured by agricultural and livestock paper, these debentures being exempt from taxation. These banks are not empowered to make loans directly to individual farmers. Drawing their own resources in part from the Treasury of the United States and in part from the purchasers of collateral trust debentures, they transfer these funds to agriculture through rediscounting agricultural paper for banks, for agricultural credit corporations, and for co-operative credit associations. The only loans that may be called direct extensions of credit are those made to the co-operative associations, which are composed of persons engaged in producing or marketing agricultural commodities.

In 1924 the Federal Intermediate Credit Bank of Baltimore established a branch in San Juan. While the theory of the Federal Intermediate Credit system was that its loans would be of an intermediate character, that is, intermediate between commercial bank loans and long-term bonds, the loans made in Porto Rico are as a rule for the identical purposes for which the commercial banks make loans. They are extended for financing the production and also the marketing of agricultural products. The production period may be regarded as extending for a period of, roughly, six months, with the warehousing and marketing period of shorter duration. The Federal Intermediate Credit loans are, as a matter of fact, made for nine months. Commercial bank loans, on the other hand, are not uncommonly extended for six months and renewals are not infrequent.

The procedure with intermediate credit loans may be illustrated as follows: In the case of tobacco, for example, a loan will be made to a co-operative credit association of producers for a nine months' period beginning September 1 and ending June 30, the maximum being $75 per acre. Advances are made from month to month according to the needs of the producer, not only during the crop-growing period but covering the marketing period as well. As the crop matures, the loan may be increased to $120 an acre if its value so warrants. Moreover, after the crop has been harvested and stored, loans may be made based upon a percentage of the market value of the product in storage. Thus, it will be seen that the Federal Intermediate Credit Bank is a direct competitor with the commercial banks in furnishing credit for both the production and the marketing of farm products.

The rate of interest on these loans averages about 5½ per cent (for variations see page 392) to the agricultural credit association (or bank) which presents the paper for discount. The individual borrower, however, usually pays about 6½ per cent, the 1 per cent differential going to cover the costs of the credit association or discounting bank. The law and the regulations of the Federal Farm Loan Board fix the maximum difference between the rate paid by the final borrower and that charged by the Intermediate Credit Bank at 2 per cent. At times Porto Rican credit corporations have charged less than 1 per cent above the rate at which they borrow. The amount that a given credit association can borrow is limited by a provision restricting loans to ten times the paid-in capital of the association.

Borrowers from intermediate credit agencies pay less than borrowers from commercial banks. It will be seen that there is a differential of typically 1.5 per cent between the rates paid by borrowers through the Intermediate Credit Bank and the lowest rates paid by borrowers from commercial banks. This difference is to be explained chiefly by two factors which favor the Intermediate Credit Bank. The most important factor is that the capital stock is furnished by the government, which has expectations of only moderate dividends, if any. The second factor is the superior credit standing of the agricultural credit association over the average individual borrower.

Another element perhaps is the smaller operating costs involved in extending credit by means of the Intermediate Credit Bank. Whether these factors fully account for the difference in the rates paid by the ultimate borrowers, is difficult to say.

The Federal Intermediate Credit loans have not shown any great development, as is indicated by the following table:

INTERMEDIATE CREDIT LOANS [a]

Year	Loans	Repayments	Number of Borrowers
1925	$662,005.22	$209,099.85	406
1926	1,229,513.10	1,198,365.59	549
1927	1,716,110.80	623,249.49	1,405
1928	1,430,385.66	1,843,917.46	1,464
1929	3,096,004.87	1,579,976.26	....
Five-year period	$8,134,019.65	$5,454,608.65	

[a] From data furnished by the Manager of the Federal Land Bank at San Juan.

For several years the amount of loans made remained virtually stationary; but a sharp increase occurred in 1929. Repayments have fluctuated from year to year, but up to the end of 1928 the aggregate repayments were satisfactory. In 1929 as much as $980,000 of loans which matured had to be renewed, owing no doubt to the effects of the hurricane.

The increase in 1929 was due to the fact that the high interest rates which prevailed everywhere in that year made it possible and profitable for Porto Rican banks to rediscount paper with the Federal Intermediate Credit Bank. When the Intermediate Credit Bank rate of discount rose as high as 6 per cent the banks could discount paper without lowering their own rates to borrowers below the established 8 per cent minimum. At the same time money borrowed in New York cost them more than 6 per cent. This condition has already changed as a result of the easing of money rates in New York.

It is of interest to note in this connection that, with a view to maintaining a large volume of rediscounts for commercial banks, the suggestion has recently been made that the 2 per cent differential between the rate paid by the final borrower and that charged by the Intermediate Credit Bank should be abandoned as far as Porto Rico is concerned. It is argued that, with the Porto Rican banks charging a minimum rate of 8 per cent, and with the Federal Intermediate Credit rate typically below 6 per cent, the commercial banks cannot ordinarily avail themselves of the facilities of the Intermediate Credit Bank. This is undoubtedly true; but to make the minimum rate agreed upon by the Clearing House Association in Porto Rico the determinant of the rate at which Federal Intermediate Credit should reach the final borrower in Porto Rico would defeat the very purpose of the Federal Intermediate Credit system—which is to make credit available at rates somewhat lower than those hitherto existing. This is true on the mainland no less than in Porto Rico.

The amount of outstanding loans of the Federal Intermediate Credit Bank is equal to only about 4 per cent of the total loans made by the commercial banks which operate in Porto Rico. The failure of the Intermediate Credit Bank to play a more important part in Porto Rican finance is to be attributed chiefly to the fact that co-operative credit associations have thus far had no extensive development in the Island. As indicated in Chapter XVIII the development of such co-operative agencies should be fostered by the Federal government.

The extension of the Federal Farm Loan system to Porto Rico was made possible by an amendment in 1921 to the Federal Farm Loan Act, originally passed in 1916. The Porto Rican branch began operations about the first of October, 1922. The loans are made to farm owners who either cultivate their land personally or direct its cultivation. Until March, 1929, the limit of loans to any one individual was $10,000, but the maximum has now been raised to $25,000. These amortization loans run for a period of 20 years. Prior to 1928, the interest rate was 6 per cent, but it is now 5.5 per cent. The loan and repayment operations since the organization of the Land Bank at San Juan are shown by the table on the following page.[22]

The table shows a decline in the last two or three years in the number of borrowers, and also in the volume of new loans, the gross loans outstanding increasing from 1926 to 1929 by only about $1,000,000 a year. The total loans are

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[22] Data furnished by Manager of San Juan branch of Federal Land Bank.

FEDERAL LAND BANK OPERATIONS

Year Ending Dec. 31	Gross Loans	Amortization Requirements	Net Loans Outstanding [a]	Arrears of Principal and Interest	Number of Borrowers Each Year
1924......	$5,147,300	$90,650.07	$5,056,649.93	0	878
1925......	7,644,500	257,241.62	7,387,258.38	$7,852.48	939
1926......	9,870,000	488,104.90	9,381,895.10	21,166.69	764
1927......	11,409,300	774,189.51	10,635,110.49	48,654.80	782
1928......	12,740,900	1,101,558.45	11,639,341.55	176,751.97	683
1929......	13,497,400	1,462,779.58	12,034,620.42	527,777.30	576

[a] Net loans outstanding if amortization requirements had been met promptly.

equal to approximately 20 per cent of the amount of the outstanding short-term loans of the commercial banks operating in Porto Rico. The last column indicates that there has been in the last two or three years serious difficulty in meeting the annual payments required on account of amortization and interest charges. In 1929 of the $527,000 in arrears, $199,689 was on account of principal, and $328,089 represented unpaid interest.

VI. IS AN INSULAR BANK REQUIRED?

For many years there has been a persistent demand in Porto Rico for the establishment, under government auspices, of a so-called Insular Bank. In 1913 the legislature passed an Insular Bank Act, which defined the powers of such an institution, and authorized the establishment of a private corporation for carrying out the provisions of the law. When such a corporation failed to be organized, the legislature, in 1916, passed a Facilitating Act,[23] which authorized the raising of the capital by a public loan, the Treasurer of Porto Rico being instructed to issue, with the approval of the government, $1,000,000 in bonds, to be guaranteed by the people of Porto Rico. Administration opposition and questions of constitutionality connected with the proposed bond issue again prevented the establishment of an Insular Bank. In 1921 the legislature passed a Final Mandate,[24] which sought to compel the immediate establishment of the bank; but administrative opposition continued to prevent the setting up of the institution. In March, 1929, a concurrent resolution was introduced in both houses of the local legislature to petition the Governor, through a committee, for the immediate establishment of the long-discussed bank; but the resolution failed of adoption.

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[23] Joint Resolution No. 7, approved April, 1916.

[24] Laws of Porto Rico, Act No. 80, approved 1921.

The advocates of the Insular Bank have emphasized the "powerful influence it would exert over the credit of the Island in regulating interest on loans, which interest grows higher and more onerous in spite of laws limiting it."[25] The original act itself authorized maximum rates of 7 per cent on real estate loans, 8 per cent on loans secured by collateral and personal property, and 8 per cent on loans secured by growing crops. The bank was also authorized to make loans to the government of Porto Rico, to dispose of evidences of indebtedness, to act as depository for the funds of the Insular and of municipal governments, and to conduct a trust business as executor. The board of directors was to consist of seven members, four elected by the stockholders, and three by government officials, namely, the Attorney General, the Treasurer, and the Speaker of the House of Delegates.

The Insular Bank was not given power to handle checking accounts and it was not set up as a central bank for the rediscounting of the paper of the privately established banks, and the economizing of the reserves of the banking system. Its essential purposes were, first, to act as fiscal agent for the government, and, second, to compete with the existing private banking institutions in the making of loans. The agitation for an Insular Bank has also apparently drawn some support from the belief that it is a necessary accompaniment of political and economic autonomy.

It is our conclusion that an Insular Bank is not desirable. The existing commercial banks of Porto Rico are connected, directly or indirectly, with the commercial banks of the mainland, and thus with the resources of the Federal Reserve System. Thus, an Insular Bank designed to furnish a reservoir of credit for emergency requirements is unnecessary. In view of the fact that Porto Rico's economic life is intimately and inevitably closely conected with that of continental United States, its banking organization should be operated as an integral part of the credit system of the United States. As we have seen in the preceding analysis, companies operating in Porto Rico may borrow from Porto Rican banks with correspondent connections on the mainland, from branches of continental banks operating in Porto Rico, or directly from institutions on the mainland.

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[25] Concurrent Resolution No. 6, proposed March 7, 1929.

If the recommendations that we have made above in connection with interest on deposits, and on loans, are followed, it is believed that Porto Rico will get as cheap commercial credits as is economically possible. It should be borne in mind in this connection that if the development of a large Insular Bank really succeeded in giving the Island credit autonomy, it might well have the result of tightening credit in the Island through reducing the flow of funds from the mainland in times of seasonal and other exceptional requirements.

An Insular Bank is, moreover, not essential in connection with intermediate and long-term credit operations. As we have seen, the facilities afforded by the Federal Farm Loan and Federal Intermediate Credit systems are now extended directly to Porto Rico. Further development of the services performed by these agencies, together with the organization of better investment banking facilities, is the goal to be sought in connection with long-term credit operations.

The fiscal resources of the government are satisfactorily handled through the existing banking institutions. Moreover, neither the Insular nor the municipal government requires the facilities of a specially organized bank in connection with its borrowing operations; for it will be recalled that the existing banks are authorized to buy and sell government issues. It may also be noted that the trust function suggested for the Insular Bank can now be satisfactorily handled by the recently organized American Colonial Trust Company. In short, an Insular Bank would, in the main, only serve to duplicate existing banking and credit facilities.

CHAPTER XV

EXTERNAL TRADE AND FINANCIAL RELATIONS

Since the beginning of the American occupation, Porto Rico's external[1] trade has undergone significant changes in character and direction as well as in volume. There has also developed a considerable range of service and financial transactions between the Island and other countries—notably with continental United States. Particularly significant in affecting the trade of Porto Rico has been the entrance of American capital and the attending transformation of the economy of the Island.

In surveying the development and present status of Porto Rico's external trade and financial relations we shall consider in turn: the significant changes in the Island's external trade since the American occupation; the extent and character of other external transactions at the present time; and the extent and the various forms of external ownership in the Island. This will be followed by a discussion of the possibilities of reducing the adverse trade and service balance and thus lessening the necessity for continuous borrowing.

I. SIGNIFICANT CHANGES IN EXTERNAL TRADE, 1898-1928

We shall present the analysis in this section in three parts, showing: first, the changes in the total export and import trade from 1898 to the present time; second, the significant changes in the character of both exports and imports; and, third, the shifts in direction, or geographic distribution, of Porto Rican trade.

Exports have exceeded imports almost continuously since 1903. In the following table are given the figures for Porto

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[1] We use the term external trade rather than foreign trade because the latter term, strictly speaking, would exclude trade with the United States. For the purpose of this analysis we wish to have trade with the United States included in order that Porto Rico may be considered as an economic entity.

Rican external trade annually from 1901 through the fiscal year ending June 30, 1929. The figures are given in value terms as reported.

VALUE OF EXTERNAL TRADE, 1901-29
(In thousands of dollars, for years ending June 30)

Year	Imports	Exports	Net[a]	Year	Imports	Exports	Net[a]
1901	8,918	8,584	−334	1916	38,951	66,732	27,781
1902	13,210	12,434	−776	1917	53,545	80,971	27,426
1903	14,449	15,089	640	1918	63,389	74,294	10,905
1904	13,169	16,266	3,097	1919	62,400	79,496	17,096
1905	16,536	18,710	2,174	1920	96,389	150,811	54,422
1906	21,828	23,258	1,430	1921	105,480	112,279	6,799
1907	29,267	26,996	−2,271	1922	64,175	72,173	7,998
1908	25,826	30,644	4,818	1923	71,945	82,293	10,348
1909	26,544	30,391	3,847	1924	89,370	88,281	−1,089
1910	30,635	37,960	7,325	1925	90,505	94,819	4,314
1911	38,787	39,918	1,131	1926	95,258	98,725	3,467
1912	42,973	49,705	6,732	1927	98,811	108,067	9,256
1913	36,900	49,104	12,204	1928	92,342	103,535	11,193
1914	36,407	43,103	6,696	1929	97,861	81,723	−16,138
1915	33,884	49,357	15,473				

[a] The minus sign indicates net imports.

It will be seen that there have been only three years since 1902 when imports exceeded exports.[2] The most striking case of export deficiency is found in 1929, when, according to the preliminary figures, the import excess was over 16 million dollars. Imports did not vary greatly from the normal, but exports were greatly reduced as a result of the hurricane destruction. The period of the World War and its aftermath, 1915-20, showed a great expansion in the value of exports, resulting in a very substantial favorable balance of trade. For the years 1921-28, the excess of exports averaged approximately $6,500,000. As we shall see in a later section, this sum has been used to meet interest charges and other external obligations.

Porto Rican external trade has grown much more rapidly than population. When one is concerned with measuring the ratio of exports to imports, it is the value figures that are important, but when one is interested in measuring the growth of the export trade and the import trade, respectively, the value figures need to be corrected for price changes. For this second purpose we have prepared the following table which covers the years since 1900, and relates the trade figures to population growth. The method used in making the adjustment of the value figures is described in the footnote to the table.

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[2] Prior to 1903, imports had for some years regularly exceeded exports.

Volume of External Trade, 1901-29

(Value figures, for years ending June 30, adjusted to the 1926 price level)[a]

Year	Imports		Exports		Year	Imports		Exports	
	Total (In thousands)	Per Capita	Total (In thousands)	Per Capita		Total (In thousands)	Per Capita	Total (In thousands)	Per Capita
1901	$17,150	$17.47	$11,759	$11.97	1916	$ 51.935	$42.39	$ 61,789	$50.44
1902	24,463	24.55	18,020	18.09	1917	53,015	42.63	72,296	58.16
1903	25,349	25.07	21,868	21.63	1918	50,711	40.18	58,499	46.35
1904	23,516	22.91	22,910	22.33	1919	46,567	36.36	58,026	45.30
1905	29,011	27.85	21,261	20.40	1920	62,999	48.47	70,472	54.21
1906	37,634	35.60	30,205	28.58	1921	85,065	64.48	62,726	47.56
1907	48,778	45.47	34,172	31.85	1922	68,271	50.99	75,180	56.15
1908	42,338	38.89	38,305	35.17	1923	71,233	52.43	64,798	47.68
1909	42,813	38.75	37,989	34.38	1924	91,194	66.13	68,435	49.63
1910	45,724	40.77	44,140	39.38	1925	89,609	64.03	90,304	64.55
1911	61,567	54.10	47,521	41.76	1926	92,483	65.12	98,725	69.51
1912	68,211	59.06	52,321	45.30	1927	101,867	70.67	98,243	68.18
1913	55,909	47.70	59,161	50.48	1928	95,198	65.08	99,553	68.05
1914	52,764	44.35	55,978	47.04	1929	101,410	68.29	88,829	59.82
1915	49,829	41.27	51,414	42.60					

[a] The import figures have been adjusted by using the Bureau of Labor index number for wholesale prices, with the monthly data regrouped to correspond to the trade year of Porto Rico. Before deciding to apply this index number, we made a test of the trend of Porto Rican import prices as compared with American prices, using for this purpose an index number which we constructed on the basis of the Porto Rican import price of the seven most important food imports of the Island. In connection with export prices, a similar test showed that the Bureau of Labor index number does not compare closely with the movement of Porto Rican export prices. Accordingly, for exports we are using a special index number based on the principal exports of Porto Rico, covering the value of approximately 85 per cent of the total exports of the Island. While the value trade figures as adjusted by these index numbers do not pretend to give a precise measure of the volume of trade from year to year, they do give a rough indication of the trend and the fluctuations in the quantity of goods imported and exported. For a test of this statement so far as exports are concerned, see pages 606-7, where most of the important items of export are given in quantity terms.

This table indicates that the quantity of exports did not undergo any great expansion during the war period. Nor was there any appreciable reduction in the years immediately following, inasmuch as a collapse of values has little effect upon agricultural output as opposed to industrial production. Moreover, the total has shown a considerable growth in recent years, reaching the peak in 1928. The physical quantity of imports was not quite as great in the war period as in the five years preceding, which indicates that the masses of the people were apparently not able to expand their consumption as a result of the high prices which exports commanded. In the early years after the war imports rapidly increased, but since 1924 they have been practically stationary, except for 1929, when the influence of the hurricane was manifested.

The rapid expansion of external trade in proportion to population is shown by the per capita figures. Exports have risen from less than $12 per capita in 1901 to around $68 during the years 1927 and 1928, while imports have risen from less than $20 to more than $65 per capita. This growth of foreign trade in proportion to population is the result of the transforming of a more largely self-sufficing island economy into one which is integrally related with the commerce of the rest of the world, particularly, as we shall see, of the United States.

Agricultural products, particularly sugar, have continuously dominated the export trade of the Island. The character and composition of Porto Rico's export trade at selected intervals since the beginning of the American occupation is indicated in the table on page 404.

Since 1929 was an exceptional year on account of the hurricane, we shall reserve discussion of that year until we have considered the trend for preceding years. The exports of raw sugar have almost continuously accounted for more than half of the total value of exports. The high percentage in 1920 is attributable more to the extraordinarily high price of sugar as compared with other commodities during that year than to an increase in the quantity exported.[3] Since the price of sugar

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[3] For detailed data as to values and quantities annually, see Appendix D, pages 606-7.

COMPOSITION OF THE EXPORT TRADE[a]
(Years ending June 30)

Exports	1901		1914		1920		1924		1928		1929	
	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*
PRODUCTS OF THE SOIL	**6,861**	*79.9*	**35,065**	*81.3*	**125,355**	*83.1*	**69,769**	*79.0*	**80,845**	*78.1*	**51,406**	*62.9*
Raw Sugar	4,716	*54.9*	20,240	*47.0*	98,924	*65.6*	47,839	*54.2*	54,570	*52.7*	35,222	*43.1*
Leaf & Scrap Tobacco	375	*4.4*	3,350	*7.7*	13,416	*8.9*	13,190	*14.9*	17,075	*16.6*	12,886	*15.7*
Coffee	1,678	*19.5*	8,194	*19.0*	9,034	*6.0*	4,596	*5.2*	2,597	*2.5*	459	*0.6*
Grapefruit, fresh	......	......	752	*1.7*	1,333	*0.9*	2,001	*2.3*	2,704	*2.6*	530	*0.7*
Pineapple, fresh	......	......	1,246	*2.9*	479	*0.3*	812	*0.9*	1,654	*1.6*	1,727	*2.1*
Oranges	84	*1.0*	752	*1.7*	834	*0.6*	474	*0.5*	1,286	*1.2*	60	*0.1*
Cocoanuts	8	*0.1*	452	*1.1*	1,142	*0.7*	616	*0.7*	714	*0.7*	265	*0.3*
Cotton	......	......	79	*0.2*	193	*0.1*	241	*0.3*	245	*0.2*	257	*0.3*
MANUFACTURES	**968**	*11.3*	**7,065**	*16.4*	**14,134**	*9.4*	**14,256**	*16.2*	**15,823**	*15.2*	**21,169**	*25.9*
Molasses	596	*6.9*	986	*2.3*	1,278	*0.9*	427	*0.5*	862	*0.8*	938	*1.1*
Alcohol	......	......	21	*0.1*	152	*0.1*	147	*0.2*	405	*0.4*	326	*0.4*
Cigars	306	*3.6*	5,597	*13.0*	11,614	*7.7*	5,460	*6.2*	3,626	*3.5*	3,848	*4.7*
Fruits, canned and other	17	*0.2*	199	*0.4*	113	*0.1*	537	*0.6*	1,180	*1.1*	534	*0.7*
Textiles	8	*0.1*	[b]	......	807	*0.5*	7,505	*8.5*	9,584	*9.3*	15,337	*18.8*
Straw and palm leaf	41	*0.5*	262	*0.6*	170	*0.1*	180	*0.2*	166	*0.1*	186	*0.2*
MISCELLANEOUS EXPORTS[c]	**755**	*8.8*	**973**	*2.3*	**11,322**	*7.5*	**4,256**	*4.8*	**6,867**	*6.7*	**9,148**	*11.2*
GRAND TOTAL	**8,584**	*100.0*	**43,103**	*100.0*	**150,811**	*100.0*	**88,281**	*100.0*	**103,535**	*100.0*	**81,723**	*100.0*

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[a] Compiled from *Commercial Porto Rico in 1906*, U. S. Department of Commerce and Labor, and from *Annual Reports of the Governor of Porto Rico.*

[b] Not separately listed.

[c] Largely reshipments of goods brought in from the United States.

was practically the same in 1901 as in 1928, the value figures for these years reveal the real growth in the export sugar trade since the beginning of the century.

The growth of the export trade in leaf and scrap tobacco has increased enormously in aggregate value, and has even shown an increase in relation to the total. Tonnage figures also indicate a steady growth in the importance of the tobacco-growing industry.

Coffee, on the other hand, has shown a substantial decline in percentage figures since before the war, and also an actual decline in the value of the product exported. The tonnage figures show total exports in 1928 actually smaller than in 1901, and equal to only about 15 per cent of the total of 1914.

Fruits, consisting of pineapples, grapefruit, oranges, and coconuts, showed a considerable increase in percentage terms between 1901 and 1914; declined during the war period; and again increased in recent years. In aggregate values the increase has been substantial.

In the manufactured group, textiles show a striking increase in relation to the total, and in terms of aggregate values now rank third among Porto Rican exports. Cigars showed an increase during the war period, but have since declined.

The effects of the hurricane on the export trade of the Island are best shown by a comparison of the value figures of 1928 and 1929. The total value of exports was reduced from $103,535,000 to $81,723,000, a decline of 21 per cent, which is entirely accounted for by declines in agricultural exports. In fact, some of the manufactured exports actually showed an increase during the year.

Foodstuffs constitute approximately one-third of Porto Rico's import trade. The import data for selected years since 1900 are shown in table on page 407. It will be seen that foodstuffs have continuously constituted much the largest portion of the total,[4] varying from one-third to almost half the total. Imports of household goods, building materials, machinery, wearing apparel, etc., have remained fairly constant in relation to the total. The class showing the greatest increase is motors, railway cars, other vehicles, etc., which has risen to fourth place.

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[4] For detailed data as to the principal food imports, by years and in proportion to population, see Appendix D, pages 608-9.

About 90 per cent of Porto Rico's external trade is now conducted with the United States. The direction of Porto Rico's external trade for selected years is shown in the table on pages 408–9.

In the case of both exports and imports, the relative importance of trade with the United States has greatly increased since 1900. The percentage of imports coming from the United States was, however, at a peak during the war years when imports from Europe were restricted. Further computations show that for the years 1893-96 Porto Rico's commerce with the United States made up only about 20 per cent of the total; for the five-year period 1901-05 it averaged 78 per cent; whereas beginning with 1906, trade with the United States has ranged from 85 to 92 per cent of the total. Included in the trade with the United States is trade moving through the United States to and from foreign countries, and in consequence these percentages slightly exaggerate the importance of trade with the United States.

The West Indies constitute the next most important export market of Porto Rico, accounting in 1928 for 5.2 per cent of the total. In this year $1,220,000 went to the Virgin Islands. Leaving the boom period, represented by 1920, out of account, it appears that the trade with Cuba has been declining, that with the Dominican Republic and other West Indian islands increasing. The export trade to Spain has held up reasonably well in terms of values since 1900, and is much larger than that to any other European country. In proportion to total exports, however, it has steadily declined. Venezuela is the only South American country that takes any appreciable quantity of Porto Rican goods.

Among the countries from which Porto Rico imports, the West Indies are again the most important after the United States. Imports from all of these neighboring countries have grown steadily and, in 1928, accounted for 5.7 per cent of the total. Imports from Spain, like exports to Spain, have remained at a fairly stable level. Among other European countries it is worthy of note that the United Kingdom has shown

Composition of the Import Trade
Years ending June 30[a]

Classes of Imports	1901		1914		1920		1924		1928		1929[b]	
	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*	In Thousands of Dollars	*Percentage Distribution*
Foodstuffs	4,452	*49.9*	14,844	*40.7*	38,089	*39.5*	29,081	*32.5*	29,644	*32.1*	34,557	*35.3*
Apparel[c]	2,118	*23.8*	6,629	*18.2*	24,030	*24.9*	19,321	*21.6*	18,299	*19.8*	21,168	*21.7*
Household goods, including furniture and supplies	701	*7.9*	3,519	*9.7*	8,368	*8.7*	8,286	*9.3*	7,578	*8.2*	9,185	*9.4*
Building materials	992	*11.1*	4,868	*13.4*	9,443	*9.8*	11,665	*13.0*	8,714	*9.5*	12,947	*13.2*
Motor, railway cars, other vehicles, and other transportation equipment	71	*0.8*	538	*1.5*	2,372	*2.5*	5,532	*6.2*	8,761	*9.5*	8,587	*8.8*
Machinery and supplies used in manufacturing	519	*5.8*	2,302	*6.3*	6,828	*7.1*	5,262	*5.9*	5,549	*6.0*	4,827	*4.9*
Machinery and supplies for agriculture	......	....	762	*2.1*	3,577	*3.7*	4,090	*4.6*	7,771	*8.4*	4,307	*4.4*
All other imports	65	*0.7*	2,945	*8.1*	3,682	*3.8*	6,133	*6.9*	6,026	*6.5*	2,283	*2.3*
Total	8,918	*100.0*	36,407	*100.0*	96,389	*100.0*	89,370	*100.0*	92,342	*100.0*	97,861	*100.0*

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[a] Compiled from *Commercial Porto Rico in 1906*, U. S. Department of Commerce and Labor, and from *Annual Reports of the Governor of Porto Rico.*

[b] Compiled from preliminary report of the Bureau of Customs, U. S. Treasury Department.

[c] Includes also semi-finished textiles, such as embroidery cotton and cotton cloth.

DIRECTION OF PORTO RICO'S EXTERNAL TRADE[a]

(Years ending June 30)

I. Exports

Countries	1901		1914		1920		1924		1928		1929[b]	
	Thousands of Dollars	*Percentage Distribution*	Thousands Dollars of	*Percentage Distribution*	Thousands of Dollars	*Percentage Distribution*	Thousands of Dollars	*Percentage Distribution*	Thousands of Dollars	*Percentage Distribution*	Thousands of Dollars	*Percentage Distribution*
United States	5,581	*65.0*	34,423	*79.9*	133,208	*88.3*	80,755	*91.5*	96,663	*93.4*	76,418	*93.5*
West Indies:												
Cuba	1,110	*12.9*	3,089	*7.1*	7,264	*4.8*	2,736	*3.1*	166	*0.2*	79	*0.1*
Dominican Republic	39	*0.5*	51	*0.1*	7,411	*4.9*	1,270	*1.4*	2,901	*2.8*	2,007	*2.5*
Other	121	*1.4*	68	*0.2*	568	*0.4*	1,377	*1.6*	2,247	*2.2*	2,688	*3.3*
Other North America	342	*4.0*	10	....	3	....	32	....	13	....	53	*0.1*
Spain	596	*7.0*	1,368	*3.2*	1,595	*1.1*	589	*0.7*	829	*0.8*	271	*0.3*
Other Europe	794	*9.2*	4,026	*9.3*	580	*0.4*	1,326	*1.5*	27[illegible]	*0.2*	29	....
Venezuela	[c]	....	5	....	88	*0.1*	145	*0.2*	117	*0.1*	158	*0.2*
Other South America	1	....	27	*0.1*	61	....	10	....	14	....	13	....
Other Countries	....	....	36	*0.1*	33	....	41	....	308	*0.3*	7	....
Total	8,584	*100.0*	43,103	*100.0*	150,811	*100.0*	88,281	*100.0*	103,535	*100.0*	81,723	*100.0*

II. Imports

United States	6,965	*78.1*	32,568	*89.5*	90,724	*94.1*	80,590	*90.2*	79,743	*86.3*	85,078	*86.9*
Canada	294	*3.3*	594	*1.6*	1,441	*1.5*	847	*1.0*	885	*1.0*	1,025	*1.0*
West Indies:												
Cuba	3	....	52	*0.1*	137	*0.1*	78	*0.1*	1,249	*1.4*	803	*0.8*
Dominican Republic	2	....	93	*0.3*	738	*0.8*	912	*1.0*	1,895	*2.1*	2,227	*2.3*
Other	16	*0.2*	91	*0.3*	179	*0.2*	1,722	*1.9*	2,013	*2.2*	2,180	*2.2*
Other North America	....	....	82	*0.2*	396	*0.4*	1,036	*1.2*	480	*0.5*	285	*0.3*
Spain	808	*9.1*	772	*2.1*	1,011	*1.0*	632	*0.7*	783	*0.8*	662	*0.7*
France	167	*1.9*	309	*0.9*	96	*0.1*	134	*0.2*	223	*0.2*	243	*0.3*
Germany	152	*1.7*	336	*0.9*	91	*0.1*	291	*0.3*	411	*0.4*	525	*0.5*
United Kingdom	375	*4.2*	476	*1.3*	357	*0.4*	566	*0.6*	795	*0.9*	675	*0.7*
Other Europe	118	*1.3*	495	*1.4*	399	*0.4*	1,626	*1.8*	1,567	*1.7*	1,819	*1.9*
Venezuela	7	*0.1*	4	....	62	*0.1*	40	*0.1*	545	*0.6*	804	*0.8*
Other South America	....	....	89	*0.2*	278	*0.3*	411	*0.4*	583	*0.6*	352	*0.4*
Other countries	11	*0.1*	446	*1.2*	480	*0.5*	485	*0.5*	1,170	*1.3*	1,183	*1.2*
Total	8,918	*100.0*	36,407	*100.0*	96,389	*100.0*	89,370	*100.0*	92,342	*100.0*	97,861	*100.0*

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[a] Compiled from *Commercial Porto Rico in 1906*, U. S. Department of Commerce and Labor, and from *Annual Reports of the Governor of Porto Rico.*

[b] Compiled from preliminary report of the Bureau of Customs, U. S. Treasury Department.

[c] Less than $500.

the most important expansion of exports to Porto Rico. South American countries again are unimportant.

The inclusion of Porto Rico within the American customs area has greatly stimulated trade with the United States. By a Presidential proclamation of July 25, 1901, Porto Rico was made a part of the American commercial system, like any state in the Union. We shall consider the effect of this proclamation, first upon the export trade, and second upon the import trade.

The omission of duties on Porto Rican exports to the United States enormously stimulated the shipment of Porto Rican products to the mainland, since it gave to Porto Rican producers an advantage over outside competitors. The situation may best be illustrated by reference to sugar. The chief competitor of Porto Rico in the American sugar market is Cuba. At the present time the importer of sugar from Cuba has to pay a duty of 1.76 cents a pound,[5] whereas the importer from Porto Rico has no duty to pay. The substantial differential which has continuously existed, has thus attracted outside capital to Porto Rico for the development of the sugar industry. The abolition of the American tariff as applied to Porto Rican products thus not only greatly stimulated the development of certain types of Porto Rican industry, but closely cemented the trade relations of the Island with the mainland.

The United States tariff has also tended to increase Porto Rican imports from the United States. By virtue of the fact that Porto Rico has become a part of the customs system of the United States, it has to maintain the same duties upon imports from foreign countries as does the rest of the United States. The result is to eliminate foreign countries as a potential source of supply for many types of products, and at the same time to increase their cost to Porto Rico.

This situation has given rise to no little complaint on the part of the Porto Rican people. It is contended that they must buy the great bulk of their imports in the United States protected markets, where wages and costs are high, and that they are denied the opportunity of importing their goods from markets where costs of production are lowest. However, the logic of the situation does not point toward giving any state or territory the benefit of inclusion within the American customs union so far as the sale of its commodities is concerned, and of remaining outside that union in connection with its purchases.

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[5] This duty applies to sugar testing 96°.

American coastwise shipping laws are a handicap to Porto Rican trade. These laws require that all goods moving between Porto Rican ports, and between Island ports and the United States, must be carried in American ships.[6] The purpose of the shipping laws is, of course, to stimulate the building up of the American Merchant Marine. Since Porto Rico has no merchant marine except a few small vessels engaged in local traffic, all of Porto Rico's trade with the United States—which represents 90 per cent of its total external trade—is now carried in American ships. The economic significance of this development is that Porto Rican imports and exports alike carry somewhat higher shipping rates than would be the case were Porto Rican traders free to utilize the cheaper carriers of other countries.

The handicap to Porto Rican trade manifests itself in three distinct ways. In the first place, it increases the cost of Porto Rican imports by the extent to which the rates charged by American ships are higher than those charged by other ships. The concrete significance of this may be illustrated by the fact that Cuba, which, of course, is not subject to American shipping laws, can bring rice all the way across the Pacific at a cost of only one-tenth of a cent a pound more than the cost of bringing it from Louisiana.

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[6] Following is the section of the Merchant Marine Act of 1920 pertaining to coastwise shipping:

"Sec. 27. That no merchandise shall be transported by water, or by land and water, on penalty of forfeiture thereof, between points in the United States including Districts, Territories, and possessions thereof embraced within the coastwise laws, either directly or via a foreign port, or for any part of the transportation, in any other vessel than a vessel built and documented under the laws of the United States and owned by persons who are citizens of the United States, or vessels to which the privilege of engaging in the coastwise trade is extended by sections 18 or 22 of this Act . . . ."

In the second place, the requirement that American ships shall be used tends to offset somewhat the advantage which the tariff gives to Porto Rico in selling in American markets. In the case of sugar, for example, the Cuban rate on raw sugar to New York is 10 or 11 cents a hundred, while the corresponding rate from Porto Rico is 15 cents, and on refined sugar the rate from Cuba is around 13 cents and from Porto Rico around 21 cents.

In the third place, if Porto Rico were free to use foreign shipping whenever it found an advantage in so doing, it is quite probable that it would be able to build up a larger trade with foreign countries than it now has. If a foreign ship bringing goods to the Island, for example, could then pick up a cargo for American as well as foreign ports, it is not improbable that more foreign ships would call at Porto Rican ports. This would open the way for the Island to buy many of its imports in foreign markets instead of having these same goods shipped to it as "reexports" from the United States. It would thus profit not only by the lower rate on foreign shipping but also by a saving of handling charges on the mainland.[7]

This is not the place to argue whether laws designed to establish the American Merchant Marine are good or bad from the standpoint of the mainland, but it is distinctly unfortunate that so large a share of the cost of carrying out such a policy is placed upon the shoulders of Porto Rican consumers, whose purchasing power is far below the American standard.

It is possible, however, that a modification of the coastwise shipping laws, as suggested, might so curtail American shipping that the fast freight services now existing between New York and the Island would have to be discontinued, in which event the loss to Porto Rico might well outweigh the gains. The problem requires further detailed study than we have been able to give; and hence we make no definite recommendation.

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[7] Furthermore, the treasury of the Insular government would profit by this arrangement. Import duties on goods coming into the Island are collected there and turned over to the Insular treasury; but if the port of import for these goods is on the mainland, the duties, of course, are collected there and are turned over to the United States Treasury.

II. EXTENT AND CHARACTER OF OTHER EXTERNAL TRANSACTIONS

In addition to the commodity trade with the mainland and foreign countries, Porto Rico has a variety of other trade and financial relations with the outside world, particularly with the United States. Some of these operations bring net income to the Island, while others result in net outgo. On the income side, along with net receipts from the commodity trade, are sums received in the form of gifts and contributions for educational purposes, foreign missions and churches, health, and scientific research; Federal expenditures in the Island; remittances received from emigrant Porto Ricans; and sums spent by outsiders for advertising in the Island. On the outgo side are amounts spent for shipping, banking, and trade commissions, insurance, tourist expenditures, motion pictures, cable and radio charges, lottery tickets, and interest, dividends and rents paid to continental and foreign investors.

The non-trade sources of international income and outgo result in a heavy deficit for Porto Rico. The reader should bear in mind that for the moment we are not considering borrowing, or capital, transactions, but only the items listed above. It is impossible to present the data covering a period of years; but for the single year ending June 30, 1928, we have made a detailed analysis which we believe to be reasonably accurate.[8] The net deficit shown by these non-trade, or "service," transactions for this year was $21,427,000.

The table on page 414 shows the major classes of income and outgo including the results of the commodity trade. The table as a whole thus gives the complete statement of external operations for the year, exclusive of capital movements.

It will be seen that the trade surplus was almost entirely offset by the single item of interest, dividends, and rents, and that freight payments, marine insurance, and commissions about equaled the amount of the trade surplus. On the income side, Federal expenditures is the one important item other than trade. The deficiency on trade and service account as a

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[8] For the method of making this analysis and the detailed data on which the summary tables in this chapter are derived, the reader is referred to Appendix C, pages 582-84, and 589-98.

TRADE AND SERVICE OPERATIONS, YEAR ENDING JUNE 30, 1928

(Figures are given in thousands)

OPERATIONS RESULTING IN NET INCOME TO PORTO RICO:		
Commodity trade including unrecorded exports and imports	$11,070	
Gifts and contributions	506	
Federal expenditures in Porto Rico	2,712	
Advertising	400	$14,688
OPERATIONS RESULTING IN NET OUTGO FROM PORTO RICO:		
Freight payments and marine insurance on imports	$5,980	
Commissions	4,190	
Remittances to families abroad in excess of emigrant remittances	302	
Tourist trade	110	
Other insurance transactions	1,980	
Motion picture royalties, cable and radio charges	407	
Lottery tickets	1,000	
Interest, dividends, and rents	11,019	
Miscellaneous	57	25,045
Net deficiency for all trade and service operations		$10,357

whole has, of course, been offset by the sales of securities, real estate, and mortgages, and by other forms of borrowing.

While we do not have the detailed data for other years, the trade data, together with information pertaining to certain other items in the account, indicate that the three years preceding 1928 were probably slightly less favorable than 1928; and that, as a result of the hurricane late in 1928, the year ending June 30, 1929, would show a very much larger deficit. Reference to the table on page 401 above, indicates, for example, that instead of a trade surplus of over $11,000,000, there was a deficit of over $16,000,000.[9] With reference to former years, running back to 1900, we know that there must have been a substantial deficit on trade and service accounts combined; this by virtue of the fact that there has been a large increase in foreign investments in Porto Rico

[9] The apparent lack of agreement between the trade surplus figures given on pp. 401 and 414 is explained by a glance at the more detailed figures on p. 583, which agree with the summary figures on p. 414. It will be seen that the figures given there include more than the recorded trade figures, whereas those on p. 401 are recorded trade only.

since the beginning of the American occupation. During the war years, however, in consequence of the exceptionally large surplus from trade, there was probably little, if any, increase in the net amount of foreign capital holdings.

The trade and service deficit for 1928, as already indicated, was covered by an increase in indebtedness to foreigners. Capital transactions between Porto Rico and other countries, including the United States, are, in the course of any given year, of numerous kinds, some resulting in receipts to Porto Rico, and others resulting in outgo. To arrive at the net increase in investments, it is necessary to draw up a statement covering all receipts and outgo resulting from capital transactions. We have made for 1928 an original study by methods explained in Appendix C,[10] the results of which are shown in the following table:

CAPITAL TRANSACTIONS, OR BORROWING OPERATIONS, YEAR ENDING JUNE 30, 1928

(Figures are in thousands)

OPERATIONS RESULTING IN NET RECEIPTS TO PORTO RICO:		
Decrease in Porto Rican investments in foreign and mainland securities	$2,300	
Decrease in direct ownership in outside enterprises, real estate, and mortgages	500	
Decrease in holdings of foreign currency notes	356	
Decrease in external short-term investments	100	
Decrease in deposits in foreign and mainland banks	1,100	
Decrease in commercial credits to outsiders	1,000	
Increase in bank loans and advances from the mainland	2,500	
Increase in foreign and mainland holdings of Porto Rican securities	2,983	
Increase in foreign and mainland mortgages and liens on Porto Rican property and crops	1,532	
Increase in external ownership of Porto Rican real estate	150	$12,521
OPERATIONS RESULTING IN NET OUTGO FROM PORTO RICO:		
Net increase in holdings of United States cash and currency notes	$664	
Decrease in deposits in Porto Rican banks by outsiders	500	
Decrease in commercial debts due to foreigners	1,000	2,164
Net receipts resulting from debt and investment operations		$10,357

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[10] Pages 582-604.

It will be seen that the net receipts from capital transactions—which represents the increase in indebtedness to outsiders—amounted to $10,357,000, a figure which, of course, exactly offsets the deficit on trade and service account.[11]

III. EXTENT AND CHARACTER OF ABSENTEE OWNERSHIP

References have repeatedly been made in this study to the fact that since the American occupation there have been heavy, and practically continuous, investments of American capital in Porto Rico. For the year 1928 we are able to present a statement showing the total investments of outsiders in Porto Rico, and also the offsetting external investments of Porto Ricans. The table on page 417 shows the principal classes or forms of these investments:[12]

Of the foreign and mainland holdings in the Island, it will be seen that those bulking largest are securities of corporations whose primary operations are in Porto Rico. These corporations are chiefly American—organized by American capitalists and operated as American enterprises in the Island. The stocks and bonds of these corporations represent assets in the form of both working and fixed capital, particularly plantations and mortgages on agricultural land in which the company is interested. Porto Rican branches of mainland and foreign enterprises are of comparatively lesser importance, and are also, in the main, American. Real estate and mortgages owned by individuals living abroad—as distinguished from those held among the assets of corporations and firms engaged in some active enterprise in the Island—are for the most part owned in Spain, though some are also owned in France and in the United States proper.

Investments in the securities of the Insular and municipal governments make up the second largest item in the list, and account for about one-fourth of all external holdings. The other important items are bank loans and investments—discussed in the preceding chapter.

Roughly one-fifth of the wealth of the Island is owned

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[11] For the explanation of the precise agreement in the net figures shown in the two accounts, the reader is referred to Appendix C, page 583.

[12] The methods by which these figures were compiled are shown in Appendix C, pages 601-4.

Extent and Character of Foreign Ownership

(Figures are given in thousands)

FOREIGN AND MAINLAND HOLDINGS IN PORTO RICO:		
Insular and municipal government securities	$43,894	
Stocks and bonds of corporations operating mainly or entirely in the Island	70,000	
Foreign-owned enterprises operating in Porto Rico (chiefly smaller branches of mainland or foreign enterprises)	5,000	
Individual ownership of foreigners and mainlanders in real estate and mortgages of Porto Rico	25,000	
Mortgages and loans of the Federal Land Bank and Intermediate Credit Bank	12,700	
Deposits of foreigners and mainlanders with Porto Rican banks	2,000	
Loans and advances of foreign and mainland commercial banks to Porto Rican corporations and individuals	15,000	
External holdings of Porto Rican short-term securities	500	
Commercial debts due to foreigners and mainlanders	1,000	
Government debt of the Insular government to Federal government	1,200	$176,294
PORTO RICAN INVESTMENTS OUTSIDE THE ISLAND:		
Investments of Porto Rican citizens and corporations in mainland and foreign securities	$8,500	
Direct ownership in foreign and mainland enterprises, real estate, and mortgages	2,500	
Holdings of foreign and mainland cash and currency notes	6,500	
Deposits in foreign and mainland banks (including the Postal Savings system, and Government deposits)	8,267	
Short term investments in the United States	600	
Commercial credits established for mainland and foreign firms	4,000	30,367
Net amount of foreign holdings in Porto Rico, in excess of Porto Rican holdings abroad		$145,927

abroad. The total of all foreign and mainland holdings in Porto Rico, it will be seen from the table above, is around 176 million dollars, while the net amount by which external holdings in Porto Rico exceed Porto Rican holdings abroad is slightly less than 146 million dollars. These figures in themselves carry little meaning. When taken in conjunction with an estimate of the total wealth of the Island, however, their magnitude becomes apparent.

It is estimated that the wealth of the Island aggregates something like 650 million dollars.[13] Approximately 20 per cent of the wealth of the Island is thus the property of outsiders. These figures gain added significance from the fact that the share belonging to foreigners represents active, productive capital; whereas the share belonging to Porto Ricans includes personal property as well as productive capital.

A classification by industries of the holdings of outsiders is also helpful in considering the part played by outside capital. The sugar corporations represent the most important industry in the Island, the capital invested in sugar being several times that in any other single industry.[14] The tobacco companies make up the one large group of agricultural corporations, while the public utilities are also of considerable importance. Approximately two-thirds of the securities of the sugar corporations and most of those of the tobacco companies and public utilities are held outside the Island. External ownership in the securities of these several groups of corporations is roughly estimated as follows:[15]

	In Millions of Dollars
Sugar	40
Tobacco	10
Banks	3.5
Fruit	2
Miscellaneous, including public utilities	14.5

Porto Rican properties held by branch houses of outside corporations may be classified roughly as follows: the stations, docks, offices, and real estate mortgages of the big oil corporations aggregate in value perhaps $2,000,000; and the selling establishments, offices, and equipment of the automobile and insurance companies operating in the Island, taken together, aggregate perhaps $3,000,000.

Of the four principal agricultural industries of the Island, coffee alone is primarily Porto Rican in its management and ownership. But even the coffee industry depends on outside sources for a considerable share of the working capital that it requires, obtaining these funds by means of loans secured by real estate and crop mortgages.

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[13] Based on original data collected in Porto Rico.

[14] See discussion in Appendix E, pages 641-43.

[15] A small additional amount should probably be included for the securities of bus transportation corporations. The item given for banks includes some that are simply branches of mainland banks. For convenience, however, all external ownership in banks operating in Porto Rico is included here.

IV. SOME GENERAL CONSIDERATIONS

The statistics presented in this chapter indicate a substantial excess of exports over imports during the last 20 years, accompanied by a steady increase in interest, dividends, and rent payments. In the relatively good year ending June 30, 1928, the Island's income from trade and service operations was, as we have seen, approximately $10,000,000 less than the obligations due to outsiders. We may now consider whether external trade and financial relations present fundamental difficulties.

In the first place, it is to be noted that there is no real problem in connection with the maintenance of currency stability. Since the Island is not an autonomous political unit, it does not maintain a separate currency system of its own. As we have seen in Chapter XIV, the Porto Rican banking system is, by means of branch banks and correspondent relations, closely integrated with that of continental United States. Accordingly if a heavy adverse balance in the Island's external accounts resulted in a temporary drain of money from the Island, the deficiency would doubtless shortly be made good by a transfer of the banking funds from the mainland.

In the second place, there is an element of flexibility in the fact that from one-third to one-half of the total ownership by outsiders is in the form either of share capital or direct ownership in land or business enterprises. Outsiders included in this group do not receive a fixed return on what they have invested, but in good years receive more, in poor years less. This represents an element both of strength and of weakness. In poor years the amount of external payments required shrinks considerably. In good years, however, it expands. Moreover, so far as sugar, tobacco, and fruits are concerned, outsiders come in for a large share of the benefits that may result from increased efficiency in operation.

In the third place, it is to be noted that the growth of foreign indebtedness, while occasioning large interest and dividend payments abroad has resulted from productive operations. As has been shown elsewhere, the earnings on foreign capital have been, generally speaking, relatively large, and the interest and dividend payments abroad have been made possible by the expansion of exports which has resulted from the development of the Island. So long as the new capital which comes in earns a substantial rate of return, the fact that there exists an adverse net balance against the Island is not a matter of concern from the point of view of the maintenance of general economic stability.

Looking forward we may expect a gradual decline in the importations of new capital—for the reason that the period of most rapid development of the Island's economic resources, public works, etc., is apparently past. A decline in capital imports, which still bulk comparatively large in the import trade, would tend to increase the present excess of exports over imports. The balance of trade may also well be favorably affected by changes in agricultural organization and by the development of manufacturing, discussed in other chapters. In Chapter XIV, attention is also directed to the possibilities of expanding the income from the tourist trade by exploiting the climatic and scenic possibilities of the Island.

In conclusion a word should be said with reference to the relation of capital imports and absentee ownership to the welfare of the masses of the people. While it cannot be denied that the inflow of capital has increased the efficiency of production and promoted general economic development, it does not follow that the benefits of this have accrued to the working people of the Island. In the final chapter of this book attention is called to the desirability of increasing the contribution of foreign corporations to the general welfare of the Island by means of increased wages to the workers and increased taxes to the Insular Government.

CHAPTER XVI

COMMERCIAL ORGANIZATION

Great changes have occurred during the past 30 years in the manner of doing business in Porto Rico, changes which are only in part attributable to the transfer of sovereignty to the United States. They are due in some degree to new commercial practices that have become current throughout the world in response to readier communication of intelligence, quicker and cheaper transportation, expanded industrial production, increasing publicity, and keener competition. These have combined to accelerate the exchange of products and to diversify consumption in the Island quite as markedly, relatively to conditions in 1900, as they have upon the mainland.

I. INTERNAL TRADE

Wholesale trade has shown a relative decline. Nearly all of the trade that crossed the wharves or lighter landings of Porto Rico 30 years ago passed through the hands of wholesalers. Even so-called commission houses dealing in export produce and in staple imported provisions, like rice and codfish, belonged in this category. Some such firms incidentally performed banking services for their customers. These wholesalers, who were found in every important port town, canvassed the retail trade through commercial travelers and supplied virtually all the imported goods that their customers sold.

Today, with the cable, the radio, weekly or biweekly steamer mail and triweekly air mail, with quick parcel delivery by truck from every port and landing, and with standardized merchandise and a flood of attractively printed and illustrated catalogues at their disposal, retailers place many orders directly with mainland jobbers or manufacturers, and save thereby a middleman's profit. The extent to which this is done varies with the character of the goods involved. It is most common in case of standardized, imperishable articles unaffected by fashion, like hardware, and is relatively rare in case of provisions.

Commission houses and manufacturers' agents have multiplied in recent years. The former carry stocks of goods shipped them on consignment, while the latter sell only from catalogues or samples. There are about 100 commission houses and half as many manufacturers' agents in San Juan, and the latter have sub-agents in the smaller towns. Quick and convenient transportation and the extension of banking facilities to all parts of the Island have been responsible for the development of these concerns as intermediaries between manufacturers and retailers and large consumers. Delivery from the mainland can now be had by buyers in two or three weeks, or nearly as soon after placing their orders as they formerly did from San Juan or Ponce.

The mainland manufacturer or jobber accompanies his invoice by a draft which is accepted by the purchaser and collected at the local bank. If the buyer is a seasoned customer in good financial standing, goods are shipped him on open account on 60 days' credit with a small discount for cash. As a result, less capital than formerly is tied up in idle stock, the trade is more responsive to styles and fashion, and losses by deterioration of goods from climatic or other causes are reduced. Manufacturers' agents may represent several firms in noncompeting lines, and their readiness to take on new business, which involves little additional expense or financial risk on their part, facilitates the introduction of novelties and diversifies merchandise offerings, thus widening the choice of customers.

Specialization has been decreasing. Except for the commission man or manufacturers' agent, who is now a specialist instead of a combination banker, factor, wholesaler, and agent, the merchant class is less specialized today than formerly. This change is similar to the one which has manifested itself in drug, cigar, and classified price stores on the mainland and is probably copied from such establishments. The city department store, the five-and-ten-cent store, and the universal emporium type of drug store are already established on the Island. Hardware merchants have absorbed related lines like plumbing, electrical supplies, and certain building materials, such as cement, tile, and reinforcing rods as rapidly as a market for them developed, thus greatly diversifying their business. Somewhat different is the tendency for wholesalers to branch out into retailing and for larger retailers to wholesale goods to their smaller neighbors.

The chain store has made its appearance in a modest way. For example, one wholesale drug company in San Juan has a contract, strengthened by community of ownership, with a large retail store owned by a separate corporation for which it is the exclusive supplier. This retail store, in turn, controls four branch establishments, and all of them deal in a wide variety of goods besides drugs and medicines. The economies secured by concentrating orders and shipments from the mainland and credit arrangements in New York would seem to favor an extension of this or some similar form of merchandising organization in the Island.

The transformation which Porto Rican commercial organization has undergone is similar in character to that which has occurred elsewhere, but is more far-reaching. The more complete and drastic character of the change is doubtless due to the coming to a focus of a whole group of revolutionary forces in a relatively short period of time. Strong has been the desire to reduce marketing costs through the elimination of middlemen and the simplification of organization. The change has been encouraged by the speed and ease with which rural and village customers can reach the larger towns, or even the capital, by bus or automobile. There was hardly a show window in Porto Rico 30 years ago, and most city streets were dark at night. Today, the combined attractions of show-window shopping and the movie are drawing country buyers increasingly to the towns. Public markets are numerous, every municipal center in the Island having one and San Juan three. Some of these are in the open air; others occupy substantial buildings usually built of concrete. These are owned by the town, and rents from market booths constitute an item of city revenues. The market hall or market place is the natural rendezvous of the town-visiting peasant, where he disposes of his little cargo of fruit or vegetables to some local dealer, rarely selling his goods directly to consumers. The market is the place where the vegetable and fruit peddler loads his wares, unless these happen to consist of imported fruits which he buys from storage warehouses near the waterside.

Retail outlets take a variety of other forms. In those areas where the large sugar companies exercise a strong sphere of influence, company stores are important. Company stores, while serving primarily plantation employees, are open to the general public. As a result, a conflict of interests has arisen between the older mercantile establishments, not connected with the sugar companies, and the company stores, the former frequently losing out in the fight.[1] Besides, a tendency exists to duplicate facilities, thus adding to the expense of doing

Country Store and Residence

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[1] Partly as a result of this competition, nearly a score of commercial establishments have had to go out of business in San Germán, for example during the last twenty years. It would be wrong, however, to attribute the decline of this particular town as a merchandising center altogether to the inroads of company stores. A waning coffee industry and closer contact with the neighboring port city of Mayagüez through good roads and jitneys, together with the fact that many women and children in the town of San Germán and its vicinity work at home for Mayagüez needlework concerns and deliver their goods once a week in Mayagüez, have done their share to depress local retailing.

business. One might almost speak of a dual economy, the mercantile organization of the *central* being superimposed upon the regular system which caters to the general public.

Small wayside stores with meager stocks of staple provisions, canned goods, soft drinks, patent medicines, and cheap textiles still survive and, indeed, appear to be multiplying. Their survival in face of the modernization of urban trade is due largely to the poverty of the people and to the habit of hand-to-mouth buying, especially of food and other perishables, found everywhere in the tropics. The *jíbaro* has no place to keep provisions from mold, decay or insects, even from one meal to another. Indeed, the meal hour itself, as commonly understood among the better situated classes, does not exist for many of these people. Food is bought in minute quantities as irregularly as the meals are taken and is consumed immediately. In the sugar country, and to a large extent wherever export crops are raised, plantation stores supply most of the wants of the laboring population. These stores sometimes have two departments—one where rice, beans, tobacco, and the other necessities and simple luxuries of the field hand are done up in tiny fixed price packages, ready to be handed to the customers in exchange for two or three coppers—and another comparable in every way with a general store upon the mainland.

In response to these conditions, wholesalers have held their own in the provision trade. They have warehousing and, in some instances, cold-storage facilities to carry goods until wanted by their small country customers. Large mainland packing firms have branches and cold-storage houses in San Juan. Certain standard supplies which have been introduced within the last few years, like motor fuel and oil, are handled precisely as they are upon the mainland.

The peddler trade is still important. Although the huckster is a less frequent and picturesque feature of Porto Rican street life than he was in Spanish times, it is impossible to walk more than a few minutes along any city street or well-populated country road without meeting him. His stock in trade is as varied as the wants of the community. Except in the larger towns he seldom hawks from his cart, but carries a little stock of notions on a tray on his head, or, if dealing in textiles, in a pack or thrown over his arm. He obtains his supplies—sometimes on credit—from a local retailer, and certain cheap stores make more or less a specialty of this kind of business. Fruit and vegetables are usually hawked from carts which load early in the morning at the nearest market. It is one of the inconsistencies of Porto Rican life that in this land of poverty California fruits, especially grapes, pears, and apples, have a sale even among the humbler classes of the population. Local confections are also extensively peddled, as are likewise *chicharones*—the scrappling left after trying the lard out of pork.

Vendor of Native Hats

The mail-order business has constituted an appreciable factor in the retail transactions of Porto Rico for the past ten years or more. Some of the principal mainland concerns engaged in this business are: Montgomery Ward & Company, Sears, Roebuck & Company, Marshall Field & Company, of Chicago; B. Altman & Company, John Wanamaker, The Royal Tailors, The National Bellas Hess Company (formerly The National Cloak and Suit Company) of New York City; The

American Wholesale Corporation, of Baltimore; The Bernard Printers, of St. Louis; and Butler Brothers.

All these houses and others not mentioned mail their catalogues to a list of prospective customers from Porto Rico, taken from telephone guides, directories, and other sources. Some of them, like The Bernard Printers, send sales representatives to the West Indies, who solicit orders for printing business stationery, account books, etc., upon which they make lower prices than those ordinarily quoted by local printers. Moreover, the local firms do not ordinarily canvass for Island orders through traveling agents.

A wide variety of articles—in fact, all ordinarily featured in mail-order catalogues—find their way to Porto Rican buyers through the mail-order channel. Many of the articles and commodities purchased are not usually carried in stock in Porto Rico, at least by firms easily accessible to consumers. For a time, mail-order houses were supposed to enjoy some advantage over local dealers because the goods they sent through the mail escaped the 2 per cent sales tax. As a result, the legislature of Porto Rico, taking advantage of congressional permission, made a special provision for collecting the sales tax upon articles coming through the mail. While the primary object of this law was to secure additional revenue, it may have acted for a time as a damper upon mail-order buying on account of the inconvenience purchasers were put to in paying the tax at the post office. At present, however, some mail-order houses are quoting their goods to consumers tax paid. It is estimated on a basis of sales tax collections that mail-order houses sell goods to the value of some $2,000,000 annually in the Island. Probably half of this amount represents merchandise which local dealers did not ordinarily carry in stock.

The commercial personnel is increasingly composed of natives. Formerly, both the wholesale and the retail trade of Porto Rico were almost entirely in the hands of Spaniards. Even today men from the Peninsula and the Mediterranean islands are prominent in most fields of commercial activity, and a considerable amount of Spanish capital is invested in Island business. In the larger towns, North Americans have established a few retail stores dealing in quality goods and

Levantines have set up shops for selling cheap merchandise. Big business enterprises, like packing and oil companies, have mainland or European representatives. More merchants than ever before, however, are natives of the Island, and agents and salespeople, many of whom have taken business college courses in the United States, are recruited almost entirely from local families.[2]

Business houses are, on the whole, competently managed and up to date. North American merchandise and technique and advertising methods have displaced to a considerable extent the less aggressive trade practices and tactics of the leisurely colonial era. Sales are quicker, and profits counted in percentages of cost are presumably lower than they used to be. An observer obtains the impression that there are too many retail outlets and that this results in a higher marketing cost than would exist if retailers were fewer in number. Undoubtedly, one important item of present costs is the small unit of sale which is so common. This arises from the low purchasing power of the masses. For example, a man will buy one cigarette, a woman three cents' worth of milk or two cents' worth of charcoal.

A more efficient and economical organization of internal trade may in time be forced upon the Island by the sheer compulsion of competition. Some of the changes just described probably point in that direction. But no immediate way suggests itself to cheapen the transfer of the necessaries of life from the producer to the consumer, and especially to the poor laborer and the peasant, beyond organizing the marketing of local produce as recommended in another chapter.

Commerce is reasonably stable, despite violent fluctuations of prosperity occasioned by dependence on one or two export crops and periodical natural disasters. Statistics of insolvency mean less than they might with more data for comparison than we now possess as to the lines of business involved and the Island's total commerce. But the table records interesting facts as to the ratio of assets to liabilities and the rise and decline of failures from year to year. The latter movement appears to parallel the prosperity of sugar, although relatively few sugar companies have actually become insolvent.

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[2] "Fly-by-night" firms are usually interlopers from mainland cities.

Business Failures in Porto Rico, 1917-28
(U. S. Circuit Court Records)

Items by Years	Voluntary	Involuntary	Total
1917-1918:			
Number	12	10	22
Liabilities	$177,845.33	$50,927.35	$228,772.68
Assets	48,281.86	10,782.68	59,064.54
Assets as a percentage of liabilities	*27.1*	*21.2*	*25.8*
1918-1919:			
Number	10	9	19
Liabilities	120,779.90	33,663.04	154,442.94
Assets	33,699.99	9,047.25	42,747.24
Assets as a percentage of liabilities	*27.9*	*26.9*	*27.7*
1919-1920:			
Number	3	4	7
Liabilities	30,362.96	106,113.53	136,476.49
Assets	15,332.50	18,499.29	33,831.79
Assets as a percentage of liabilities	*50.5*	*17.4*	*24.8*
1920-1921:			
Number	9	6	15
Liabilities	64,720.63	71,639.92	136,360.55
Assets	9,628.60	12,835.82	22,464.42
Assets as a percentage of liabilities	*14.9*	*17.9*	*16.5*
1921-1922:			
Number	14	12	26
Liabilities	231,795.53	124,956.13	356,751.66
Assets	54,300.54	52,246.67	106,547.21
Assets as a percentage of liabilities	*23.4*	*41.8*	*29.9*
1922-1923:			
Number	81	31	112
Liabilities	1,121,131.22	997,685.19	2,118,816.41
Assets	171,233.22	501,934.58	673,167.80
Assets as a percentage of liabilities	*15.3*	*50.3*	*31.8*
1923-1924:			
Number	30	13	43
Liabilities	684,889.46	15,779.64	700,669.10
Assets	47,049.91	2,616.58	49,666.49
Assets as a percentage of liabilities	*6.9*	*16.6*	*7.1*
1924-1925:			
Number	63	22	85
Liabilities	1,015,636.56	771,496.29	1,787,132.85
Assets	137,005.80	52,367.48	189,373.28
Assets as a percentage of liabilities	*13.5*	*6.8*	*10.6*
1925-1926:			
Number	114	48	162
Liabilities	1,474,239.82	189,237.59	1,663,477.41
Assets	205,732.31	30,476.77	236,209.08
Assets as a percentage of liabilities	*14.0*	*16.1*	*14.2*
1926-1927:			
Number	40	16	56
Liabilities	895,903.95	99,244.03	995,147.98
Assets	184,533.27	15,973.99	200,507.26
Assets as a percentage of liabilities	*20.6*	*16.1*	*20.1*
1927-1928:			
Number	28	25	53
Liabilities	348,188.20	504,532.81	852,721.01
Assets	50,627.54	28,839.55	79,467.09
Assets as a percentage of liabilities	*14.5*	*5.7*	*9.3*

II. EXTERNAL TRADE

Porto Rico's transfer from preponderantly Spanish to mixed Spanish and American commercial control, the accompanying change in the nature of its economic orgnization, and the difference which separates the twentieth and the nineteenth centuries have combined to work revolutionary changes in the Island's external trade. Of particular influence in changing trade methods has been the development of large-scale agricultural enterprise and the steadily growing importance of the United States, both as a market for Island exports and a source of Porto Rican imports, which has been discussed in the preceding chapter.

The organization of the export trade is comparatively simple; a large portion of the exports are concentrated through internal trade and then processed or manufactured in commercial centers. Sugar cane, grown partly by large companies and partly by individual farmers, is brought to a few mills which ship the raw sugar to the United States. Much of the tobacco raised on the Island is manufactured for export by a relatively small number of companies, or else it is brought to co-operative warehouses for curing, assorting, and possibly stemming. Coffee and fruit likewise move to packing or curing plants, and thus are concentrated prior to shipment from the Island.

The sugar industry is of such dominating importance in the economy of the Island, particularly in the coastal regions where the import and export trade has its centers, that the relationship of its merchandising mechanism to the general mercantile organization deserves special attention. This is particularly true in those parts of the Island in which the four big sugar companies are active. These companies control a large share of the general merchandising in their vicinity as well as the trade in cane, raw sugar, and molasses. They handle, directly or indirectly, not only producers' goods, such as machinery, fuel, fertilizer, and implements, but also the necessaries of life used by thousands of workers and their families.

The southwestern part of the Island is the sphere of influence of the South Porto Rico Sugar Company, which makes upward of 110,000 tons of sugar annually at its Guánica *central.* Its tributary territory reaches along the west coast to Añasco, and is said to extend far into the central part of the Island. Going east along the south shore we come to the Central Aguirre Sugar Company, with three mills, which, in 1928, made over 122,000 tons of raw sugar. Stretching west from Humacao, and reaching far into the interior, almost to the back door of San Juan, is the territory of the United Porto Rican Sugar Company, controlling five *centrals*, which made almost 65,000 tons of raw sugar during the last grinding season. North of this, and dominant in the northeastern section of the Island, is the Fajardo Sugar Company, with a capacity of 80,000 tons in its two mills at Fajardo and Loiza. These four companies together produce considerably over one-half the raw sugar made in Porto Rico. All of these companies follow the practice of purchasing, in New York or in other primary markets, much of their own fuel, machinery, fertilizers, and supplies.

As stated before, over one-half of the raw sugar exported from Porto Rico originates in the mills of four large corporations. These corporations have close financial relations with other companies in the United States, particularly in New York and Boston, where their head offices are situated. They have their own dock facilities and warehouses. Their business is decidedly attractive to the steamship companies which carry their outbound and inbound freight. Through their mainland offices they are in close touch with the refineries and possibly have some community of interest with them. Their marketing problems are much more simple than those of the smaller units in the industry. Individual mills which have an annual output of ten, twenty, or even twenty-five thousand tons do not possess their own docks or sufficient warehouse capacity and are exploring various ways of meeting their difficulties. One example is the work of a *central* on the outskirts of Ponce, which, having a capacity of 27,000 tons, erected a plant to refine its own product and that of its neighbors. Several *centrals* have found it to their advantage to sell all or part of their raw sugar to this establishment. As a result, the Porto Rican-American Sugar Refining Company turned out last year about a million bags of refined sugar.

In general, Porto Rico, as compared with Cuba, is seriously handicapped in marketing raw sugar, and were it not for the tariff her position would be weak. In the first place, Cuba is not as completely dependent on the United States for the disposal of sugar as is Porto Rico. Very little Porto Rican sugar could be sold at a profit outside of the United States; while, in 1927, Cuba sold almost 500,000 tons in the United Kingdom alone. In 1927, Cuba sold 123,000 tons to China, or more than the capacity of the largest *central* in Porto Rico. In the second place, the shipping problem is more difficult for Porto Rico because its distribution is more unevenly spread through the year. In 1927, for instance, the maximum monthly shipment for Cuba took place in March and amounted to 811,000,000 pounds; while the lowest figure was in December, with 388,000,000 pounds. The ratio of maximum to minimum shipments was roughly two to one. In the case of Porto Rico, the ratio is, in some years, twenty to one. Porto Rico ships between 70 and 75 per cent of all her crop during the five-months period from February to July; while during the four-months period from September to January, as little as 5 per cent of the crop may move. Cuba's water transport service is more flexible. If desirable, sugar can be shipped by train directly into cars that are ferried across the channel to Florida, or it can be shipped in vessels of any flag, while Porto Rico must rely exclusively on American bottoms. Last of all, Cuban shipments are so large that it generally pays to charter vessels rather than to rely on regular lines. Therefore, taken all in all, Cuba possesses decided advantages in marketing sugar which somewhat offset her tariff handicap of 1.75 cents a pound.

An important by-product of sugar is molasses. In Porto Rico approximately 50 gallons of molasses are produced for every ton of raw sugar made. Thirty million gallons are made annually in Porto Rico, as compared with 250 millions in Cuba. Up to about 15 years ago, molasses was considered a nuisance and was either burned or dumped into the ocean. Today it finds a ready market as a raw material for industrial alcohol and stock foods. At the present time, three molasses companies are active in Porto Rico, the American Molasses Company, which operates through two subsidiaries, the Boston Molasses Company and the Porto Rican Mercantile Company;

the Old Time Molasses Company, which is a subsidiary of the National Distilling Company; and the United Molasses Company. *Centrals* near tidewater generally own a pipe line which delivers molasses directly into small tankers capable of entering shallow water. The American Molasses Company, through its subsidiaries, owns a fleet of tank cars which reach most of the *centrals* over the tracks of the American Railway. The big molasses companies own large tank vessels in which the molasses is transported to the mainland. Their contracts with the *centrals* sometimes run for as long as four years. A limited amount of molasses is manufactured locally into alcohol, most of which is exported from Arecibo to the mainland in drums.

Next to sugar, tobacco is the leading export commodity. That shipped from Porto Rico can be divided into the following groups: (1) Leaf tobacco, stemmed and unstemmed, grown in Porto Rico; (2) tobacco manufactures made from tobacco grown on the Island; (3) stemmed tobacco exported from Porto Rico, but of Cuban origin; (4) tobacco manufactures exported from Porto Rico consisting in part of imported tobacco; (5) scrap, stems, etc.

The Porto Rican-American Tobacco Company holds a position in the Island's tobacco trade similar to that held by the four big corporations in the sugar business. This company is supposed to purchase approximately one-half of the Island's crop. It has altogether ten manufacturing plants, two of which are in the United States. It also acts as a buyer of Porto Rican tobacco for various mainland concerns. Next to the Porto Rican-American Tobacco Company the co-operative tobacco associations are the most important marketers of this crop. Their work and methods are described more fully in another chapter.

Importation of Cuban leaf for stemming, which has been mentioned as an item in the Island's reexport business, is largely in the hands of American firms which own the stemmeries and finance the transaction.

Pineapples and citrus fruits come fourth in the list of Porto Rican exports, following needlework. Their cultivation for the outside market was introduced by continental Americans and the business is largely in their hands, although native

Islanders are taking an increasing part in this business. Porto Rico shares with Cuba the position of chief supplier to the mainland market of fresh pineapples. In Cuba pineapples are grown on a larger scale than the limited area of Porto Rico permits, and shipping facilities are better and cheaper than from the latter Island. In these respects the fruit trade of Porto Rico labors under the same handicaps as the sugar business. The pineapple growers of Porto Rico, therefore, are urgent for a higher tariff; arguing that unless they have additional protection Cuban competition will affect them as adversely as it has the formerly prosperous growers of Florida.

Grapefruit Direct to England
(San Juan Wharves)

Porto Rico possesses a decided advantage in marketing fresh fruit, however, because its ripening season is different from that of its competitors. Its grower can deliver grapefruit in New York at a time when other shipping centers are not yet ready. Thus, in September, 1928, 209 carload lots of grapefruit reached that city from Porto Rico as against four from Florida. As soon as heavy shipments from Florida begin, Porto Rican growers hold back and wait for another favorable conjuncture. They stay out of the market almost entirely during November and December when Florida shipments are heaviest. If, owing to abnormal weather conditions, this seasonal advantage is lost, the canning industry comes to their relief. Even apart from its emergency function, however, canning is assuming increasing importance in Porto Rico.[3]

The relatively small number of producers engaged in growing and packing fruit and the racial homogeneity of the group make this industry a favorable field for associated effort. At present there are three co-operative organizations in this business, the Porto Rican Fruit Exchange, the Porto Rican Fruit Union, and the Fruit Growers' Credit Association. The first of these performs the larger number of functions, but has a smaller membership than the other two.

The Porto Rican Fruit Exchange is a selling organization with offices both in San Juan and in New York. It is reported to handle between one-fourth and one-third of all fresh fruit shipped from Porto Rico, and is somewhat stronger in the grapefruit than in the pineapple trade. Several years ago it invested in packing houses and warehouses, but has since sold these interests.

The Porto Rican Fruit Union, on the other hand, is primarily a co-operative forwarding agency. It also supplies its members with packing material. At present the question of establishing a precooling plant in San Juan is being considered. The Union handles shipping papers, supervises stowing of cargo, and in general watches over the work of the longshoremen and the steamship companies. Several members of the Porto Rico Fruit Exchange employ the forwarding services of the Porto Rican Fruit Union.

The Fruit Growers' Credit Association was organized late in 1928 for the specific purpose of facilitating the solution of the credit problems created by the recent hurricane. The reason given for the fact that a considerable number of growers keep aloof from the co-operative organizations is their financial dependence on mainland commission merchants. Most of the fruit shipped from Porto Rico is sold at auction in New York City.

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[3] A promising beginning has been made the present season (1929-30) of shipping grapefruit directly to England.

The coffee business, once the leading industry of the Island, is rapidly losing ground. Here the Spanish element is as important as it is negligible in the fruit business. Here, too, a co-operative movement is developing. The small coffee planter had been, from an early period, dependent upon Spanish merchants and money lenders to whom his land was mortgaged and who advanced additional credit against his crop. Since the establishment of a Federal Farm Loan Bank and Federal Intermediate Credit Bank, cheaper and more abundant credit have emancipated coffee growers in a degree from the hold of Spanish capitalists. As a result, a considerable share of the coffee exports now move directly through a central selling agency which acts for the various local co-operative growers' associations instead of through the former factoring houses.

Part of the crop is still shipped through merchants, but their methods also have undergone radical changes as a result of improved communication and transportation. Formerly, coffee was delivered by the growers to local buyers, who in turn sold it to exporting factors in a seaboard town. Nowadays, these exporting houses handle only a small part of the crop, the bulk of which is now sold directly to mainland or European distributors from interior coffee centers such as Yauco.

Compared with Porto Rico's export trade, its import trade is exceedingly diversified. A much larger proportion of imports than of exports moves through San Juan. Practically all branches of the import trade are represented there. Nevertheless, the big sugar companies bring shipments of supplies to their own ports. Generally speaking, staple commodities, such as rice, beans, lumber, and cement, are delivered directly to the local markets where they are to be used, but higher-priced specialties move principally to San Juan, and, on a smaller scale, to Ponce and Mayagüez. All fertilizer materials enter the Island at San Juan, since the mixing plants are concentrated in that place. Petroleum products for general consumption are imported at three points: San Juan, Ponce, and Guayanilla.

Much of the import trade of Porto Rico, as has, in part, been indicated in the preceding sections, is handled directly by American producers through either manufacturing or selling branches. Of the former, the fertilizer industry ranks first. There are altogether four fertilizer mixing plants of importance on the Island. Three of these are subsidiaries of American concerns. The Santini Fertilizer Company—a subsidiary of the Armour Fertilizer Company—leads with an output of about 30,000 tons. The Porto Rican Fertilizer Company—a subsidiary of the Virginia-Carolina Chemical Company—comes next with about 20,000 tons. The third position is held by a Porto Rican concern—the Ochoa Fertilizer Company—a subsidiary of the largest Porto Rican mercantile organization, J. Ochoa y Hermano.[4] The fourth fertilizer company in San Juan is the Nitrate Agencies, Inc., a subsidiary of W. R. Grace & Company, which manufactures about 10,000 tons of mixed fertilizer annually. Therefore, four companies produce in the aggregate some 75,000 tons per annum of the Island's total consumption, which is estimated to be between 90,000 and 115,000 tons a year. The remainder consists largely of foreign mixed fertilizer, imported either through such firms as Sucrs. de L. Villamil & Company, or Korber & Company, or of American fertilizer imported directly by the *centrals*.

At the present time, the fertilizer industry of Porto Rico is facing a serious problem arising from a technical imperfection of the fertilizer tariff, which will be discussed in detail later.

In addition to those discussed, branch organizations of American concerns may be divided into two groups: Swift & Company, Armour & Company, Libby Brothers, Squibbs,

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[4] This company holds an unique position in the native business community. It is organized into five departments as follows: Commission, Insurance, Provisions, Automobiles, and Building Materials. In addition to that, it has an interest in the following subsidiary corporations: The Ochoa Realty Corporation, which owns one of the largest business houses of San Juan, The White Star Bus Line, Inc., which is carrying a rapidly increasing percentage of the passenger traffic between San Juan, Santurce, and Rio Piedras; The Porto Rican-American Insurance Company; the Auto Body Corporation, which builds bodies for the busses of the White Star Bus Line, Inc.; and, finally, the Ochoa Fertilizer Corporation.

Lederle, and others, the chief function of which is to deliver their products in good shape to the final consumer; and the General Electric Company, the Singer Sewing Machine Company, the Burroughs Adding Machine Company, and similar firms which render technical assistance to their customers. Some of these branches serve nearby islands as well as Porto Rico. The advantage, already mentioned, of operating under familiar American laws, and, in the case of perishable products, faster steamship service, are reasons for giving San Juan a preference in these lines of business.

The petroleum industry holds a middle ground between the fertilizer companies which have their own manufacturing branches, and those concerns which sell through middlemen. Except for transferring gasoline and kerosene imported in bulk into small containers for reexport to nearby islands, the products of the petroleum industry are not changed after they are brought to Porto Rico. Most petroleum products are imported by large companies which own the equipment required for redistribution, such as pipe lines from the tank vessel to the storage tank, trucks for bulk or can transportation, and filling stations.

Two large American concerns, the Texas Company and the West India Oil Company, are interested in the Porto Rican market. The latter is a Standard Oil subsidiary. Besides these two American concerns, two British companies operate in the Island, the Shell Petroleum Company and the Pyramid Products Company. The latter is a subsidiary of Trinidad Leaseholds Ltd., which in turn is a subsidiary of the Central Mining and Investment Corporation Ltd., a large British concern identified with the estate of Cecil Rhodes. The American and British companies divide the field in approximately the ratio of three to two, the proportion varying somewhat according to products and according to producing conditions. Of late, owing to the extraordinary expansion of crude oil output in Venezuela and Colombia, the loading stations of those regions and the refineries in Trinidad and the Dutch West Indies have sent increasing quantities of petroleum products to Porto Rico.

The Pyramid Products Company acquired the property of a former Porto Rican petroleum trading company, which did business for a short time under the name of the Standard Oil Company of Porto Rico. Another Porto Rican company, the Borinquen Refining Company, which does not refine but merely trades in petroleum, is also in the field. Finally, independent importers occasionally purchase a boatload of petroleum products at some Gulf port in order to take advantage of an unusual spread between continental and Porto Rican prices.

Owing to the rapid development of the electrical industry, particularly through the building of hydroelectric plants in connection with irrigation, the market for petroleum for illuminating purposes has rapidly dwindled. This decreasing demand has been somewhat offset by its growing use in tractors and stationary engines. The price of fuel oil is probably affected by the actual or potential competition of coal. Demand for gasoline has increased with great rapidity during recent years.

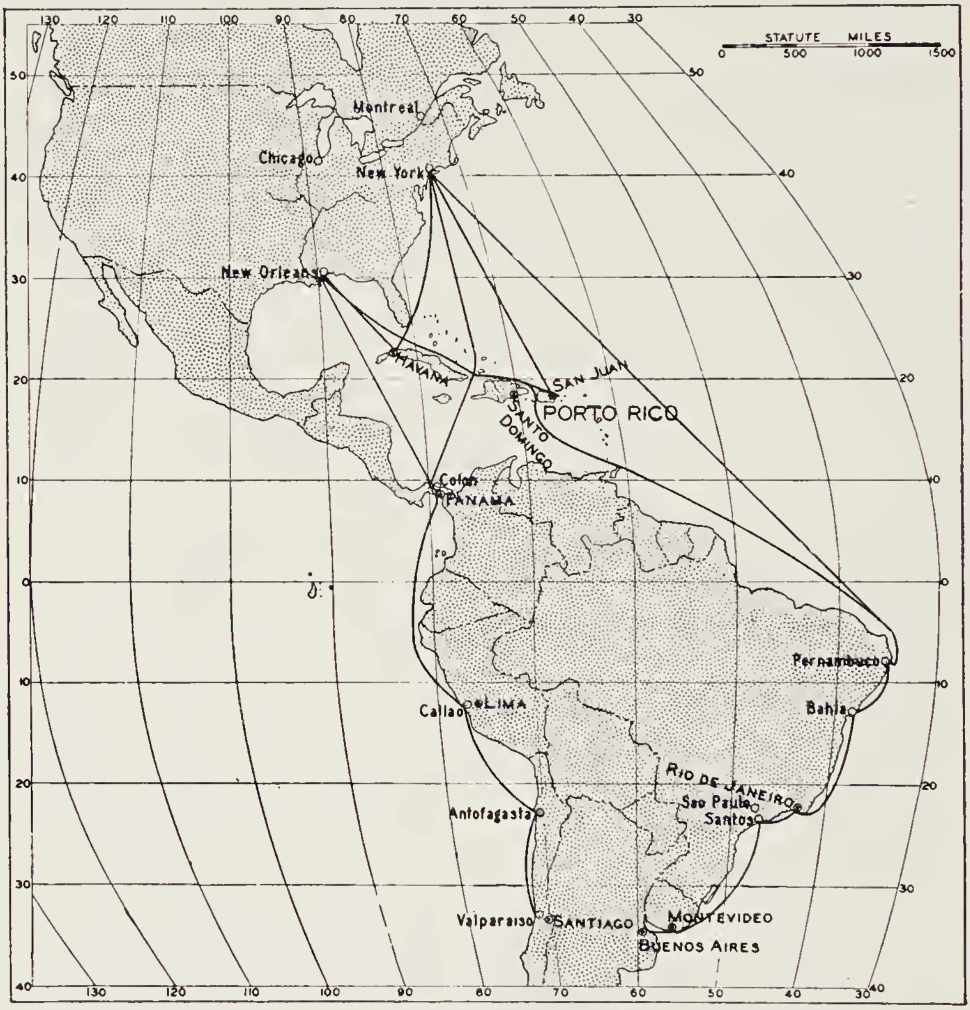
In view of the importance which rice has in the diet of the Island, the method of its distribution calls for fuller discussion. Most of that imported into Porto Rico comes from the United States. Porto Rican rice importers deal with the Gulf Coast rice mills. The miller is represented in Porto Rico through brokers who sell to wholesalers or sugar companies. Owing to the fact that rice is very difficult to grade in an unequivocal fashion, many disputes over quality arise, which are ordinarily settled through an arbitration committee of the Chamber of Commerce.

Similar problems arise in connection with the importation of beans. The exporting merchants do the concentrating and grading. About one-half the beans imported into Porto Rico come from California. Other shipments, including foreign beans from Mexico, Chile, Italy, and Rumania, are handled by middlemen in New York, New Orleans, or Houston. Japanese beans generally move through San Francisco. At certain seasons Santo Domingo beans are extensively marketed. Fish is likewise handled through commission merchants. It either comes through New York middlemen or is brought directly from Newfoundland or Nova Scotia in schooners owned by the large fishing companies.

Specialities are handled in very much the same manner as in the United States.

III. PORTO RICO AS A WAREHOUSING AND TRANSSHIPPING CENTER

Porto Rico has undoubted possibilities as a warehousing and transshipping center for the Caribbean region—this because of its geographical position adjoining the Mona passage, between its own shores and Santo Domingo, and on the main highway between Venezuela and the United States.


STATUTE MILES
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Lima
Pernambuco
Bahia
Rio de Janeiro
Sao Paulo
Santos
Antofagasta
Valparaiso
Santiago
Montevideo
Buenos Aires

Geographical Position and Principal Trade Routes

American firms naturally select Porto Rico rather than a British or Dutch colony for the location of their Caribbean sales offices, not only because of geographical convenience but because they are able to conduct busines there under American laws and the jurisdiction of Federal courts. In fact, there has been a substantial growth in such business in the course of the last decade. In some cases transhipment only is involved; in other instances the goods are warehoused for a time pending reconsignment, and in some instances there is involved a change in bulk, as, for example, when gasoline is transferred from tanks to barrels or cans. The commodities which are of major importance in this re-exporting trade are machinery and vehicles, particularly automobiles, gasoline, textiles, particularly cotton manufactures and print goods, and animal products, mainly lard, leather, hides, and skins, which are consigned by American packing houses to Porto Rico for sale in the Caribbean region. The following table shows the growth of this trade for each of the five years, 1924-28, inclusive:

RE-EXPORT TRADE OF PORTO RICO, 1924 TO 1928, INCLUSIVE [a]
(Items in thousands for years ending June 30)

Items	1924	1925	1926	1927	1928
Shipments of U. S. Goods to Foreign Countries:					
Grains and preparations of	$182	$274	$215	$385	$340
Vegetables and preparations of	43	51	45	38	54
Naval stores and rubber manufactures	36	73	59	56	147
Wood and paper and manufactures of	112	136	116	129	146
Animal products	409	515	605	486	610
Textiles	484	714	728	569	779
Nonmetallic mineral products [b]	389	639	800	853	1,067
Ores, metals and manufactures of (except machinery and vehicles)	750	692	197	188	590
Machinery and vehicles [c]	213	272	326	634	1,210
Chemicals and allied products	67	103	124	80	175
Miscellaneous	105	134	145	152	205
Total	$2,790	$3,603	$3,360	$3,570	$5,323
U. S. Goods Returned and Foreign Goods Reexported to U. S.	$1,184	$927	$1,369	$1,390	$1,218
Foreign Goods Reexported to Foreign Countries	33	49	135	60	77
Grand total	$4,007	$4,579	$4,864	$5,020	$6,618

[a] Compiled from the annual reports of the Governor.
[b] Mostly gasoline.
[c] Mostly motor cars.

It will be seen that the shipments of United States goods to foreign countries have nearly doubled during this five-year period, with the biggest increases in machinery and vehicles and non-metallic mineral products, mostly gasoline. The United States goods returned to the United States and foreign goods reexported from Porto Rico to the United States has remained practically stationery. The reexports to foreign countries of goods coming to Porto Rico from foreign countries is small in quantity, but increasing slightly.

This business is of real economic importance to Porto Rico. It yields some commissions, it increases shipping facilities and promotes trade connections and the development of markets for Porto Rican products, and, most important, it does provide some employment to Porto Rican labor. Such transshipping may expect to show continued growth as the importance of American trade in the Caribbean region increases.

It must be pointed out, however, that the development of this transshipping or reexport business is confronted with real difficulties. The Caribbean region is divided into spheres of political influence, and some of the existing steamship services to the islands serve political ends rather than economic needs, and subsidies, veiled and open, tend to perpetuate existing trade organization and connections. Moreover, the Panama Canal Zone, not far away, has excellent transhipping facilities which compete with those of Porto Rico, and Venezuela is ambitious to make Port Gomez (Turiano) the commercial center of the South Caribbean and imposes a 30 per cent surtax upon merchandise imported from Porto Rico. Notwithstanding these competitive handicaps, Porto Rico has good possibilities for increasing her warehousing and reshipment business. The establishment of a free port in Porto Rico would aid in this development, as would also the establishment of a drawback system whereby foreign goods paying a duty when imported would have the duty refunded when the goods are re-exported to foreign countries.[5]

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[5] For the importance of this in connection with manufacturing in the Island, see the following chapter.

IV. STEAMSHIP SERVICES

As indicated in Chapter XV,[6] American coastwise shipping laws apply to Porto Rico and compel all goods moving between her ports and the continental United States to travel in American vessels. Moreover, a considerable portion of Porto Rican exports going to Europe are routed via New York. This means that at least on the first lap of their journey they likewise must be carried in American vessels. Many commodities shipped from Porto Rico to nearby islands, being of United States origin, are likewise handled in American ships. In fact, most of the shipping services between Porto Rico, the Virgin Islands, and Santo Domingo are performed by the same steamship companies which carry on the trade between Porto Rico and the mainland. Finally, a considerable portion of the petroleum products brought to Porto Rico from foreign countries are produced by American companies and carried in vessels owned by them.

The earliest regular shipping connections between Porto Rico and the mainland were those uniting New York with San Juan. Before annexation, a firm of Porto Rican commission merchants operated a line which later developed into the New York and Porto Rico Steamship Company. The Atlantic and Caribbean Steamship Company, generally known as the Red D Line, is still older, going back to clipper ship days. But since this company's chief interest is trade between New York and Venezuela and the Dutch West Indies, its boats merely stop at San Juan on their north and south bound trips.

The New York and Porto Rico Steamship Company and the Red D Company are the only lines offering first-class passenger service. Unless one is willing to put up with very much less pretentious accommodations than those to which the American traveling public is accustomed, one must go to Porto Rico via New York.

Besides passengers and express freight, steamers of the New York and Porto Rico Steamship Company also carry the mail, for which the Post Office Department pays approximately $150,000 a year. In addition, the same company has a mail contract with the Shipping Board covering ocean mail route

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[6] Page 411.

No. 10, from San Juan to Santo Domingo City. This contract became effective August 1, 1928, and was made possible by the Merchant Marine Act of that year. The compensation is for the outward trip only, and amounts to $46,176 per annum, at the rate of $4 per mile for 222 nautical miles, 52 voyages a year.

While the New York and Porto Rico Steamship Company is the most important passenger line, the Bull-Insular Line, Inc., which a few years ago absorbed the Baltimore-Insular Line, Inc., ranks first as a freight carrier. This company operates primarily between San Juan and Baltimore, and San Juan and New York; but it also serves, either by occasional direct connection or through feeders, other ports on the Atlantic and West Florida coast. It also maintains a combination passenger and freight service between Porto Rico, the Virgin Islands, and Santo Domingo.

A certain division of the shipping seems to exist among these three lines. The New York and Porto Rico Steamship Company handles, besides passengers and mails, some sugar and most of the fresh fruit exported from Porto Rico. For a while, vessels of the Atlantic Fruit Company carried the bulk of the fruit, but under the stimulus of this competition the New York and Porto Rico Steamship Company improved its service by installing refrigeration and increasing the speed of its express boats. As a result, the Atlantic Fruit Company dropped out of the business and left the field to the New York Company. The Bull Insular and the Baltimore Insular lines are reputed to be carrying the lion's share of the raw sugar exports. The Red D Line, on the other hand, carries practically no sugar. The reason given is that the coffee and cocoa which the Red D Line brings from Venezuela cannot safely be stowed in the same hold with raw sugar without affecting the flavor of those products. But this line transports a considerable share of the coffee and tobacco shipped from Porto Rico.

Besides this division by commodities, there is also a geographical one. The bulk of the raw sugar is carried on contract. A *central* makes an arrangement with the New York and Porto Rico or the Bull Insular Line, sometimes for as much as two or three years, under which it agrees to ship all its sugar in that company's vessels. The steamship company, on the other hand, agrees to furnish promptly the necessary tonnage.[7] These contracts cause central ports to be known as Bull Line or Porto Rico Line ports. Thus Guánica during recent years has been a Porto Rico Line port, although boats chartered from the Bull Line are employed to carry cane from Santo Domingo to Guánica; Fajardo, on the other hand, is reputed to be a Bull Line port; so is Jobos, which serves Central Aguirre.

Besides this geographical division of the Island, connections with the mainland are similarly divided in a manner which suggests a certain balance of interests between the chief lines. Thus, to offset the Baltimore connection of the Bull Line, the New York and Porto Rico Steamship Company operates, in addition to its New York service, freight lines between New Orleans and Mobile and Porto Rico. In this service the company has met with increasing competition.

During and after the war, constant efforts were made by the United States Railroad Administration and the Shipping Board to encourage shipping from Gulf ports. Railroad rates from competitive territories were adjusted in favor of these ports and new steamship services were inaugurated. Partly in response to this stimulus, partly as a result of geographical shifts in production, the trade between Gulf ports and Porto Rico has developed relatively faster than that between the North Atlantic seaboard and Porto Rico. The commodities principally affected by this change are rice, wheat, flour, petroleum products, and lumber.

A number of lines have sprung up to carry this trade. They include the Lykes Line, which originally specialized in Texas cattle, but now carries general products of the Southwest;[8] the Waterman Line, which, besides touching Texas points, also connects with Florida; and the Gulf and Caribbean Steamship Company, which serves a similar area. This southern situation is in constant flux, new companies springing up almost every year, at first as rate-cutting outsiders and later absorbed, as was the Lone Star Line, or taken into the conference, as were the Waterman and the Gulf and Caribbean companies.

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[7] On account of the seasonal character of the sugar movement already mentioned—almost two-thirds of the crop being shipped during the grinding period—the Bull Insular Line, during these months, supplements its fleet of eight regular vessels—four from New York and four from Baltimore—by vessels chartered or withdrawn from other services. The New York and Porto Rico Steamship Company, on the other hand, is trying to "educate" the *centrals* to spread their sugar shipments more evenly over the year. It is safe to assume that only small sugar companies will submit willingly to such "education." A larger company knows its own strength and is accordingly more independent.

To defend itself against this increasing competition, which threatens to make serious inroads into its traditional business, the New Orleans service of the New York and Porto Rico Steamship Company has absorbed in its freight rates part of the rail charges on rice carried to New Orleans. Lake Charles, which aims to be the largest outlet for Louisiana rice, considers this action of the New York company unlawful, as constituting unfair competition, and has sought relief in the courts, where a suit is pending at the time of this writing.

From the standpoint of the economic utilization of ship tonnage, it seems regrettable that most of the heavy exports from Porto Rico, such as raw sugar, fruits, tobacco, and coffee, move to North Atlantic ports, while an increasing proportion of the import trade, especially when measured by weight rather than by value, comes from Gulf ports. This situation does not need to be taken too seriously, however, since Porto Rico is merely one market within the larger Caribbean area and return freight problems must be studied in the light of all the cargo movements within the region which a ship serves. Most ships bringing goods from Gulf ports to Porto Rico call on their return voyage at ports in Santo Domingo, Haiti, Jamaica, and Cuba.

Trade between Porto Rico and the Pacific Ocean is limited and handled partly by the Munson-McCormick Line, which represents the connecting link between the McCormick Line of the Pacific and the Munson Line of the Atlantic, and partly by chartered vessels which carry full cargoes of beans, lumber, and occasionally other products.

The service of the regular freight lines is supplemented by occasional vessels chartered by Porto Rican importers. This is done only in the case of bulk commodities, such as coal, fertilizer materials, and occasionally petroleum products and provisions. These chartered vessels may be steamers or schooners.

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[8] In 1928 this line absorbed the Lone Star Line.

Two rather exceptional services deserve mention. One is the Army transports, which stop at San Juan on both their outbound and inbound trips to the Panama Canal Zone. The other is that of the Ford Motor Company, which at present handles general cargo as well as Ford products. The Shipping Board is now investigating this service for the purpose of determining whether or not this line must become a common carrier. It is rumored that the American-Hawaiian Company, which carries sugar from Hawaii to Atlantic ports, considers making San Juan a port of call for its steamers on their return voyage, with a view to carrying a limited number of emigrants from Porto Rico to Hawaii.

European chartered vessels also find their way to Porto Rico, bringing a combination cargo of cement and general merchandise. Traders, acting upon cable advices from their agents as to the quantities of articles of various types that can be disposed of in Caribbean islands, pick up a general cargo by careful "shopping" methods, obtaining, for example, newsprint in Scandinavia, beans and fertilizer in Germany, cement in Denmark, shovels in England, etc. The chartered vessel then touches at numerous islands for the purpose of disposing of its cargo. Such business, as was indicated in the preceding chapter, could be more extensively developed, did our shipping laws make it possible for such boats to carry Porto Rican goods to the United States ports on the back haul.[9] Chartered vessels are also employed to bring super-phosphates from Cuba to Porto Rico. A few other foreign lines, or vessels operated by foreign exporters like the Canadian fishery companies, also carry cargoes between Porto Rico and foreign countries. The Hamburg-American Line and the Horn Line, which carry German and other northwestern European products, such as potash, synthetic nitrogen, paper, and steel reinforcing rods, to the West Indies, make San Juan a port of call. A Dutch company plying to the Dutch West Indies brings similar goods. The *Compagnie Générale Transatlantique* sends boats periodically to keep up contact with the

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[9] See page 412.

French possessions in the Caribbean. The *Compañía Transatlántica Española* visits Porto Rico regularly, bringing Mediterranean products and taking coffee in return. Both the French and the Spanish line carry passengers. Finally, most of the regular trade between Cuba and Porto Rico is handled by the *Empresa Naviera de Cuba.* Owing to the decrease, first of cattle and more recently of coffee exports from Porto Rico to Cuba, this business is losing importance. The trade with Canada partly moves through the United States, and therefore in American bottoms, and partly directly in Canadian ships.

Owing to the fact that both American and foreign lines touch at many Island ports, coastwise shipping in Porto Rico itself is relatively unimportant. It largely carries commodities which are received in bulk by San Juan importers and are subsequently parceled out in smaller quantities to the trade in other parts of the Island. Most of this internal distribution is handled by the American Railroad of Porto Rico, which connects the most important coast towns, and by trucks; but some bulk commodities, such as coal, fertilizer, and cement may be carried in small vessels from one port to another.

The Porto Rican Coal Company controls a considerable part of the coastwise transportation of coal and also carries petroleum. On return trips its boats may bring molasses to San Juan. A company known as the *Compañía Maritima de Moreno* operates a number of sailing vessels with an aggregates burthen of about 1,000 tons, and specializes in carrying goods around the Island. This company frequently relies upon salt from Cabo Rojo for return cargoes. It cannot operate to equal advantage all the year around on account of seasonal weather conditions. At times it carries cargoes between Porto Rico and neighboring islands. Molasses tankers occasionally carry petroleum products to the *centrals* from which they purchase molasses.

Generally speaking, rates from Atlantic and Gulf ports are blanketed. That is to say, they are the same whether a ship moves in or out of New York, New Orleans, or any other Atlantic or Gulf port. Rates are likewise blanketed so far as the Porto Rican ports are concerned; in other words, they usually rule the same whether the shipment goes to San Juan, Ponce, Guánica, or another Island port.

Exceptions exist, however, to both of these general practices. Sugar to Boston pays two cents a hundredweight more than sugar to other ports, and certain Porto Rican ports, owing to unfavorable landing conditions, pay 10 per cent extra.

The Merchant Marine Act of 1920 requires every shipping company to file its tariffs with the Shipping Board; but these are *pro forma* maximum tariffs and do not necessarily represent actual charges. Of the staple provisions that bulk largest in Porto Rico's imports, fish and packing house products and rice actually pay 35 cents per hundred pounds from Atlantic and Gulf ports to Porto Rico, while flour and beans pay 30 cents. Cement and fertilizer pay 17 cents per hundredweight when shipped in bags, and jute bags pay 35 cents, as does newsprint paper. Space rates are charged for dry goods and boots and shoes, and vary from 17 cents to 20 cents a cubic foot. Hardware and electric materials pay 60 and 63 cents, respectively, per hundredweight.

The rates charged by the American lines serving Porto Rico are covered by conference agreements. The most important of these is the so-called United States Atlantic and Gulf-Porto Rico Conference Agreement between the Baltimore Insular, the Bull Insular, the Lykes, the New York and Porto Rico, and the Red D lines. This agreement was approved by the United States Shipping Board, May 18, 1928. Since then, according to private advices, the Waterman Line has joined the conference and the Gulf and Caribbean Steamship Company is on the point of doing so. The chief aim of these agreements, as well as of the rate policy they enforce, is to insure stability and regularity of service.

V. PORT FACILITIES

Porto Rico has an abundance of ports. Counting only regular points of call of the leading steamship companies, there are 15 ports in the Island. Since the coast line is approximately 300 miles, this means that there is a port for every 20 miles of coast. But these ports possess very unequal natural advantages and are unevenly distributed about the shoreline. From a navigation standpoint the best are San Juan on the north coast, Jobos and Ensenada (Guánica) on the south coast, and Ensenada Honda on the east coast. The last named harbor is at present entirely undeveloped; but one of the principal steamship companies serving Porto Rico plans eventually to make it the leading port in the eastern section of the Island. All other ports are merely gentle indentations in the coast line, sometimes protected by islands or reefs.

At present Porto Rico has only three ports, San Juan, Ensenada (Guánica), and Ponce, where ocean-going vessels can lie alongside a pier or bulkhead and load or unload directly without the use of lighters. At Ponce only two vessels at a time can lie alongside the single municipal pier and practically all bulk commodities are still lightered.[10] Ensenada is a strictly private port serving the needs of the Guánica *central* of the South Porto Rico Sugar Company. Consequently, San Juan is the only first-class port handling general trade.

Lightering Freight at Ponce

Steamship companies penalize the lack of facilities afforded by the minor ports by adding a surcharge of 10 per cent to their freights on shipments consigned to other points than

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[10] Improvements are under way which will greatly increase the facilities in this port for the direct handling of commodities.

San Juan, Ponce, Mayagüez, Aguadilla, Arroyo, Fajardo, Guánica, Jobos, and Humacao. In the case of San Juan a wharf charge of 2.5 cents per hundred pounds is charged. In all other cases the steamship rate applies to delivery into lighters. The lighterage charge averages around $1.50 a ton, or 7.5 cents per hundred pounds. In Ponce ships generally have the option of delivering on the municipal pier or into lighters.

The ports of Porto Rico may be divided into two main classes: those which serve the general commerce of the Island, and those which are predominantly private landings of the sugar companies. Among the former, San Juan holds an easy lead, while Ponce and Mayagüez contend for a rather modest second place. Improvements at present under way at Ponce, unless counterbalanced by similar improvements at Mayagüez, will decide the friendly rivalry between the two cities in favor of the former.

San Juan is in fact in a class by itself. It is the only port serving general commerce where practically all the ships that are likely to call can unload promptly alongside bulkheads or piers, where Federal government funds have been spent for harbor improvements, and where definite bulkhead and pierhead lines have been established. It handles more trade than the customs figures indicate. For instance, goods transported by truck from Ponce or Mayagüez to San Juan, and shipped there by boat to New York, are credited in the customs records to Ponce and Mayagüez.[11]

Arecibo, the only other important port on the north shore besides San Juan, is considered one of the most difficult of the Island. During the winter months, weather conditions are such that steamship companies generally prefer to unload in San Juan and to absorb the rail haul from that city to Arecibo. If cargo is unloaded at the roadstead at Arecibo, it is first transferred to seagoing lighters, which take it to a sheltered lighter basin where it is reloaded either into light-draft barges, which carry it to town by river, or into motor trucks, which deliver it to its destination.

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[11] The facilities of San Juan have been carefully described in a publication jointly prepared by the War Department and the Shipping Board—*Ports of Porto Rico*, Port Series No. 21. This publication is periodically revised. The Coast and Geodedic Survey is preparing a revision of the "West India Coastal Pilot," which will contain a detailed description of all the ports and harbors of Porto Rico.

Among the sugar *central* ports those serving the large corporations are naturally the most important. Guánica stands first, because it not only ships outward more than 110,000 tons of raw sugar annually, but also receives approximately 210,000 tons of cane in addition to a considerable volume of provisions and general merchandise, fertilizers, fuel, and machinery. Jobos, which serves the Central Aguirre Sugar Company, ranks second in point of volume. Humacao, which serves both the United Porto Rican Sugar Company and the Roig interests, and Fajardo are likewise important central ports. If the present plans for the development of Ensenada Honda materialize, this new port may absorb most of the business at present done through Humacao and Fajardo, as well as that of Naguabo and Yabucoa.[12]

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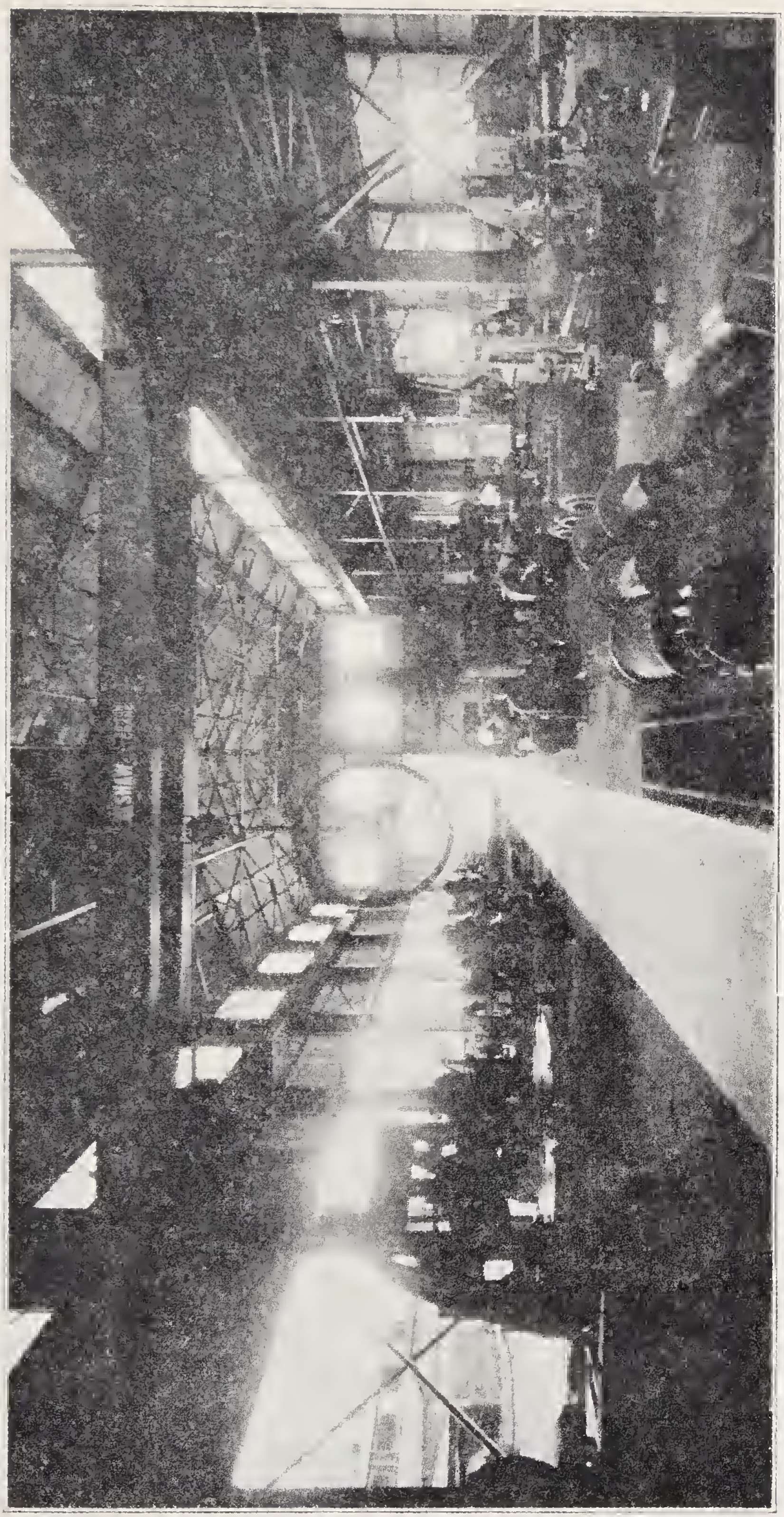
[12] Table IV, Appendix D, shows the export and import trade of Porto Rico by ports for the years 1926-28.



MACHINE SHOP
(Porto Rico Iron Works)

CHAPTER XVII

MANUFACTURES

The possibility of extensive manufacturing development has long been discussed in Porto Rico. Indeed, industrialization is regarded by many as the only solution for the pressing problems of underemployment and low wages. Accordingly, we have attempted in this survey to appraise the industrial possibilities of the Island. We shall first indicate the extent of manufacturing development that has occurred in recent years; second, set forth certain factors which condition further expansion; third, point out those fields where expansion of manufacturing is most promising; and finally suggest certain ways in which manufacturing development can be promoted.

I. THE EXISTING MANUFACTURING DEVELOPMENT

During the last ten years Porto Rico has had a considerable manufacturing development along certain lines. This industrial advance has apparently been promoted somewhat by the American immigration laws, which have caused certain industries which formerly relied upon imported cheap labor from Europe and Asia to pay increasing attention to the cheap labor market afforded by Porto Rico. The most notable expansion has been in the garment making trades. Figures for domestic production are not available, but the export statistics can be utilized to show the trend of manufacturing progress. The table on the accompanying page gives the exports of goods manufactured or processed annually for the years 1922 to 1929, inclusive. Since the price level has been comparatively stable during this period, the value figures are satisfactory for the purpose of showing the trend of development. Shipments of processed commodities produced in the Island declined in 1928-29 as a result of the hurricane of September 13, 1928.

The table shows considerable variation in the exports of molasses, but with no distinct upward trend. The canning of

EXPORTS OF GOODS MANUFACTURED OR PROCESSED IN PORTO RICO, 1922–1929 [a]

(In thousands of dollars, years ending June 30)

Commodity	1922	1923	1924	1925	1926	1927	1928	1929
Molasses	500	360	427	1,371	1,136	833	862	938
Prepared fruits:								
Canned grapefruit	113	691	306	370	606	1,034	1,003	263
Canned pineapples			162	154	162	128	141	242
Other			2	9	11	26	15	18
Tobacco manufactures:								
Stemmed leaf tobacco	[b]	[b]	[b]	7,173	11,204	15,020	12,532	10,659
Cigars	6,279	6,912	5,460	7,105	7,196	4,228	3,626	3,848
Cigarettes	36	18	49	109	55	75	78	80
Other	....	....	2	6	7	1	1	....
Textiles:								
Cotton manufactures:								
Handkerchiefs	3,791	6,564	313	761	1,234	850	1,341	1,061
Wearing apparel			6,914	5,046	6,914	8,249	6,357	13,325
Other			27	27	188	125	1,587	747
Wool and manufactures of	....	....	2	3	21	7	8	17
Silk and manufactures of	....	....	7	15	22	17	24	12
Miscellaneous textile products	....	....	7	9	12	42	30	35
Straw and palm leaf manufactures:								
Straw hats	63	126	149	113	253	215	118	73
Other	4	13	18	28	43	30	48	112
Wood manufactures	....	....	14	19	38	37	42	35
Paper manufactures	....	....	25	44	27	25	28	23
Books and other printed matter	....	....	6	8	9	10	13	7
Alcohol	41	42	147	234	216	179	405	341
Bay oil	....	....	19	38	19	23	26	21
Bay rum	....	....	4	7	2	24	73	18
Candy and confectionery	....	....	6	17	14	13	17	2
Fruit juices and beverages	....	....	6	3	....	4	17	3
Buttons	....	....	29	81	113	126	132	255

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[a] Compiled from Annual Reports of the Governor of Porto Rico.

[b] Not separately listed.

fruits, however, has shown a substantial increase, except for the hurricane year of 1929.

There has also been a significant development in connection with tobacco manufactures. The value of the cigars and cigarettes manufactured in the last three years is considerably below that of earlier years, owing in part to the growing discrimination against dark-wrapper cigars produced entirely from Porto Rican tobacco. The stemming of leaf tobacco, on the other hand, has shown a great increase. Unimportant prior to 1925, it has in recent years reached very substantial totals. It should be pointed out in this connection that leaf tobacco is brought in from Cuba and is re-exported after being stemmed. The money figures are, therefore, likely to be misleading, inasmuch as the value added by the stemming process does not constitute a large part of the final value of the exports. It, nevertheless, affords considerable employment to Porto Rican labor. The same is true of the needle trades.

Cotton garment manufacturing and allied industries have shown a remarkable development. In 1920 the value of all exports of products of this class, even with the high prices then prevailing, was only $107,000. For the year ending June 30, 1929, it was $15,133,000. Cotton handkerchief exports have increased since 1924 from about $313,000 to over $1,000,000, while cotton wearing apparel has increased from about $7,000,000 to over $13,000,000. If we compare the figures for the first nine months of 1928 with those for the first nine months of 1929, we find an even more striking development. The value of cotton manufactures exported during the former period was $6,703,251, while during the first three-quarters of 1929 the value reached $11,952,298.[1] Woolen, silk, and miscellaneous textile manufactures, as indicated by the table, are relatively unimportant, but are showing an increase. The manufacture of straw and palm leaf products is scarcely holding its own, and the same is true of wood and paper manufactures.

The manufacture of alcohol, bay oil, and bay rum has shown a substantial increase, which may account in part for the failure of molasses to show expansion. Incidentally, the alcohol is all produced by one distillery.

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[1] *Commerce Reports*, December 16, 1929, p. 681.

The great bulk of these manufactured goods is sent to the mainland of the United States. Some men's clothing and furnishings are, however, also exported to Santo Domingo, Colombia, Venezuela, and possibly other places for which the Canal Zone is a distributing point. The latter exports, which consist mainly of shirts and men's tropical suits, have risen from less than $27,000 in 1927 to $271,000 in 1928.

II. GENERAL FACTORS WHICH AFFECT POSSIBILITIES OF DEVELOPMENT

While the possibilities of industrial development are limited, they are hopeful within their restricted field. The determining factors in such development are raw materials, power resources, labor costs, and markets.

As Affected by Raw Materials. As we have seen elsewhere, Porto Rico has no mineral or forest resources upon which to base important industries. The only agricultural raw materials at present abundant which lend themselves to further manufacturing are the products of its cane and tobacco fields and to a lesser extent of its orchards and small farms. The cane fields afford sugar, molasses, and bagasse, or crushed cane fiber. Some bleached sugar for local consumption is produced in a few *centrals,* and there is one modern refinery in the Island. The latter establishment might easily be extended to handle all the Island's crop. This is not likely to occur, partly because the largest producers presumably have refinery connections on the mainland and partly because the complex conditions surrounding this industry do not favor the concentration of refining in cane-producing countries. Even the Hawaiian planters, who are among the best organized and most independently capitalized sugar producers in the world, and who are said to own the largest refinery, find it to their advantage to conduct this final operation on the mainland.

We have already seen that alcohol is distilled in the Island from local molasses. Bagasse has recently acquired importance as a raw material for building board, and the ultimate development of some industry to utilize this material is not improbable.[2] Sea Island cotton is raised to some extent and mainland thread manufacturers plan to erect a yarn mill as soon as 20,000 bales a year are assured to supply its spindles. Fruit and vegetable canning should also increase in importance.[3] But cotton mills and canneries, like sugar mills, require an assured supply of agricultural raw materials. Therefore, they must either go into farming extensively, or have firm contracts with a larger number of independent producers. Either of these alternatives presents greater difficulties in Porto Rico than it would in a country of larger size and maturer industrial experience. Nevertheless, there are possibilities in these directions which should be given careful study by interested parties.

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[2] See page 464.

PINEAPPLE CANNERY

Porto Rico's prospect of becoming an important seat of manufactures would be rather limited upon the whole were it conditioned entirely by local raw materials. It broadens, however, when we consider that the Island is favorably situated to receive such materials in abundance from abroad; not only are those of the North American mainland available duty free, but those of the neighboring islands and the South American continent are easily accessible.

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[3] See page 465.

As Affected by Power Resources. Power, like raw materials, is a factor to be considered in judging Porto Rico's industrial possibilities. While there is no local fuel supply, both coal and oil can be brought by sea, however, without undue cost of carriage whenever a large enough market for them is created. The Venezuelan oil fields are, indeed, very accessible. In long-range forecasts, however, the possibility that oil will ultimatly prove too valuable for other purposes to be used for steam generation must be considered.

A potential hydroelectric development of about 60,000 horsepower is thought to be commercially practicable in Porto Rico. Rainfall and stream volumes fluctuate so widely between the dry season and the wet season—as seven to one in some instances—that expensive storage reservoirs are required, and steam-generated current must be used to supplement hydroelectric current for a portion of the year. Consequently, the cost of steam generation eventually determines the cost of power to the manufacturer. On the other hand, the cost of hydroelectric current is cheapened at present by the fact that it is produced as a by-product of works constructed primarily for irrigation.

Power-using manufacturers must count with two groups of competing buyers, municipal and domestic consumers who pay the highest rates, and for that reason are preferred customers, and the sugar and shipping industries. The greater part of the current consumed for power purposes in Porto Rico is used to run pumps for irrigation and drainage, and for tanking fuel oil and molasses.

Omitting sugar *centrals* whose mills are operated by steam used subsequently to evaporate juice in the boiling house, most manufacturing establishments in Porto Rico employ electric power. Privately owned steam-generating plants are in operation in San Juan, Ponce, and Mayagüez, the three principal urban centers. Hydroelectric current from both government and private plants is distributed by high tension lines to most of the remainder of the Island and supplements the current generated by steam in the three cities mentioned.

In 1910, of a total of 34,000 horsepower employed in manufactures in the Island, only 1,385 horsepower was electric. Ten years later, the total horsepower employed in manufacturing was 67,227, of which 8,139 was electric. Of the latter, 2,121 horsepower consisted of rented current. In 1928, the amount of rented current employed for manufacturing purposes probably represented a load of more than 12,000 horsepower, even after excluding the part consumed by sugar *centrals* and by commercial establishments conducting repair departments, both of which were presumably included in the census figures. In Mayagüez the proportion of all current generated employed in shops and factories, including an ice plant, increased from 26.9 per cent in 1927 to 39.5 per cent in 1928.

A Power Dam

Charges for electric current naturally vary according to the amount consumed. Early in 1929 a small clothing manufacturer paid nine cents per kilowatt hour, while a light machine-using industry in another city paid 3.5 cents, and a large foundry and machine shop making sugar mill machinery and taking more than 16,000 kilowatt hours a month, in a still third city, paid only 2.5 cents. One municipal plant charges power users 70 cents a month for the first horsepower and 40 cents for each horsepower or fraction thereof in addition. The amount of current consumed for all purposes, including lighting, in Porto Rico rose from 11,000,000 kilowatt hours in 1912 to more than 62,000,000 kilowatt hours in 1927, or almost as rapidly as in the United States. There is no present indication that limitations of either supply or of cost will restrict the expansion of small industries. Large factories, if established, will presumably be situated where they can import fuel and generate their own power.

As Affected by Labor. Even those who speak from long experience hold widely divergent opinions as to the capacity of Porto Rican workers. The people of the Island do not form a homogeneous body, but differ in race, education intelligence, and aptitude. The weight of evidence, however, shows that with sufficient training they make reasonably good operatives. More than five years were required by a large handkerchief factory to raise the output of machine operatives to something approaching mainland standards. This was due partly to the time it took to train workers to report regularly at their machines and to accustom them to the deliberate and painstaking methods of handwork. Three years were required to build up a competent force of operatives in a factory making pivot jewels. Only 65 out of 230 white girls, taken on during that period, and one out of 70 negro girls proved capable of learning the trade. White girls seem to show more aptitude for operations which require extreme attention and the use of the microscope and micrometer in delicate work. This difference apparently does not exist in the needle trades, for many colored girls are employed in clothing factories.

The period of training, however, is ordinarily long, for Island operatives are beginning a stage of industrial training that factory workers in countries of longer manufacturing experience have already finished. A low standard of living accounts in part for the irregularity of workers' attendance at their posts, since workers to whom $5 a week means affluence and who know little of saving, are not easily persuaded to double their industry in order to double their income. Climate also encourages irregularity, though perhaps to a less extent than is popularly supposed. The proportion of spoiled work and of seconds in the garment trades is very much larger than upon the mainland. This evil reaches a maximum in case of sewing given out to be done in the worker's home and partly accounts for the especially low earnings and for other oppressive conditions not uncommon in this class of employment.

Cheap labor—or the anticipation of profiting by a cheap labor supply—accounts very largely, if not entirely, for the movement to the Island within the past few years of the cotton embroidery and clothing manufacture and of the pivot jewel and diamond cutting business. Cuban leaf tobacco is brought to Porto Rico to be stemmed, partly because of tariff advantages, but largely because of low Island wages. The cost of stemming one pound of leaf tobacco is reported to be much higher in Cuba than in Porto Rico, and the duty on stemmed tobacco is fifty cents per pound as compared with thirty-five cents for the unstemmed leaf. A saving in overhead also results from the fuller utilization of the Island's stemming equipment, when imported tobacco is handled as well as the native crop. Furthermore, the fairly rapid growth of these various activities must be explained as an effect of momentum. As soon as the economy of using Porto Ricans in the manufacture of cotton wares and tobacco was demonstrated, newcomers ventured in to compete with the first exploiters of this labor market.

Labor costs, so far as they are measured by wages, will be alluded to again in connection with specific industries.[4] This item of expense has been increased in some lines of manufacture, especially those which have been recently introducd, by the relatively high cost of supervision as compared with the mainland.

As Affected by Miscellaneous Cost Items. Manufacturers pay more for local credit than they would in the continental United States, and the whole machinery for doing business is more costly and cumbersome than on the mainland. Freight and express charges upon raw materials and finished goods are large items in an Island manufacturer's expense account. Even in the case of light articles like handkerchiefs, they are said to approach one-third of the labor cost of manufacturing. Rents are high as a rule in the port towns and low in the interior. One manufacturer leases a well-lighted and ventilated concrete, single-story building, with ample space for 250 operatives within less than four hours' trucking distance of San Juan for $720 a year. On the other hand, a company occupying 24,000 square feet of rented factory space in a suburb of San Juan and 40,000 square feet of similar space in Jersey City, pays $6,000 for the former and $12,000 for the latter. Certain items of manufacturing cost are, therefore, higher in Porto Rico than on the mainland.

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[4] Compare wage statistics in Appendix B.

It follows from this analysis of miscellaneous costs that the only industries which have important possibilities for development are those which can profit by the utilization of a large supply of labor that is "cheap," according to mainland standards.

As Affected by Markets. Porto Rico with its low standard of living does not afford a local market extensive enough to support either great industrial establishments or a dispersed industry with a large aggregate output. Doubtless, the home demand for Island manufactures would expand rapidly were the income of the masses to increase with added opportunities for factory employment, since its people are free spenders, but in view of the existing conditions production for domestic consumption can hardly enter into immediate consideration.

Some opening for Porto Rican manufactures exists in the neighboring islands and republics, as incipient exports to them indicate. Such markets, however, must be regarded for the present as only a prospect, promising chiefly because the whole Caribbean region may develop in the future even faster than it has since Cuban independence and the opening of the Panama Canal. Once established, Porto Rican manufacturing enterprises may find in the Caribbean regions substantial outlets for their goods, but during their infancy they must depend primarily on the mainland for their support.

Markets in the continental United States are the only potential takers of Island manufactures large enough to encourage an immediate and extensive program of industrial development. The importance of this great protected market cannot be overestimated. In this market, Porto Rican manufacturers are protected from the competition of other countries whose great asset is likewise cheap labor, and assured of a virtually unlimited outlet for the types of products which their cheap labor supply enables them to produce at low cost.

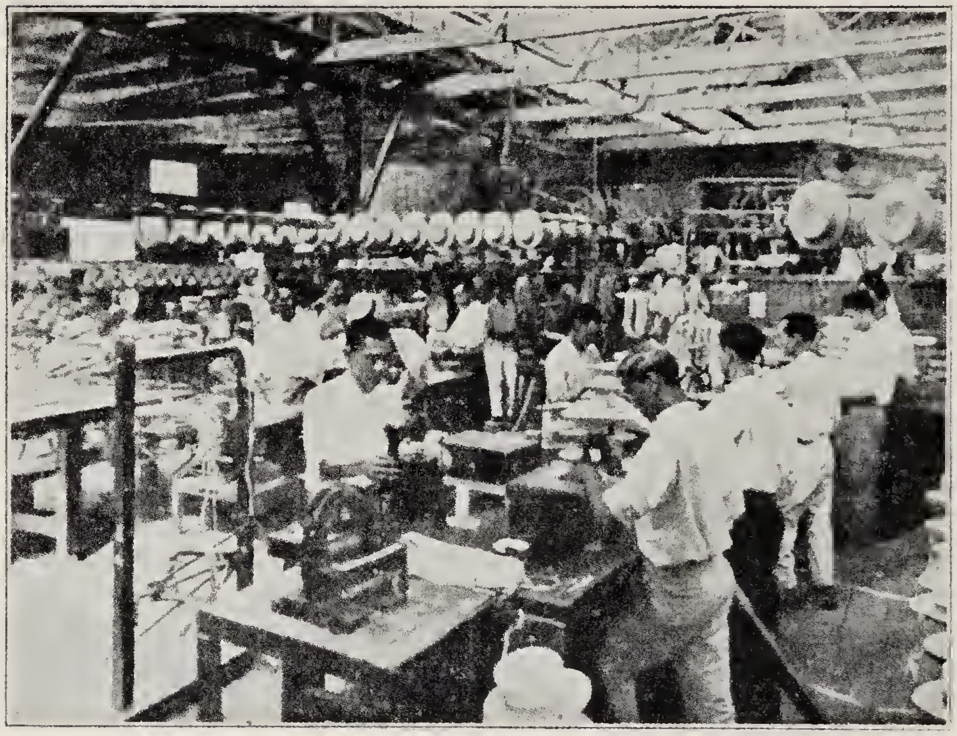
Summarizing this discussion of the fundamental factors that condition and determine the possibilities of manufacturing development, the general situation must be pronounced as distinctly encouraging. While the supply of cheap raw materials leaves something to be desired, and while certain miscellaneous costs, including interest rates, are high, Porto Rico possesses on the other hand a superabundance of low-cost labor and a great protected market in the continental United States. With these general factors in mind, we are now in a position to consider the specific lines in which possibilities for industrial expansion appear to be promising.

III. THE LINES OF PROMISING DEVELOPMENT

There are some possibilities for the development of concentrated, large-scale manufacturing enterprises; but, as we shall see, the outlook for widely dispersed small enterprise is distinctly better. In estimating manufacturing prospects and possibilities, we are on safe ground only so far as we can appeal to experience. Probably no other industry of equal size and integration would have as great an inducement to choose Porto Rico as the site of its major operations as the Celotex Company, because no other raw materials are as abundant as bagasse and because a promising market for insulating board already exists in tropical America. The failure of that company to make the Island its manufacturing center, after an extensive and costly investigation of its advantages and disadvantages, was attributed by its own representatives in part to a certain hostility exhibited by powerful interests there. We may question whether this was the sole, or the principal, factor determining the company's decision. Nevertheless, a dislike of big "foreign" corporations does exist, which tends to cool the welcome given to their projects. Another handicap to the development of large-scale enterprise is found in the alleged restlessness of labor and the fear occasionally expressed by large employers that the introduction of big manufacturing enterprises would create a discontented labor class. This attitude is probably the result of a long series of disputes between the Porto Rico Tobacco Company and its operatives, especially the cigar makers, which is said to have resulted in that corporation's transferring many of its activities to the mainland. The piecework rates paid Porto Rico operatives are lower than those paid on the mainland. The tobacco workers chiefly affected by this condition are organized and their unions are affiliated with those upon the mainland, from which they have received financial support in some of their strikes. They, therefore, know the differences between the piecework rates paid them and their mainland confreres and resent this discrimination. Furthermore, the introduction of cigar-making machinery has thrown out of work many men who have been replaced by women operatives.

Foundries and machine shops which, though very small compared with those on the mainland, employ male workers and present on a small scale many of the conditions of larger enterprises, do not complain of labor unrest. Two of these establishments cast sugar rolls and other heavy machine parts, do more or less marine engine work, and a generation or two ago would have held a respectable position, for the extent of their operations, among mainland enterprises. One of them has recently built for Venezuela a complete sugar *central,* with the most modern machinery in all its departments. Such works owe their existence primarily to the local market. Two similar establishments with a clientele in both the Orient and South America are situated in Honolulu. The Porto Rico enterprises are interesting because they suggest the possibility of making Porto Rico, with its assured mainland connections, an engineering outpost from which to co-operate in the development of all tropical America.

The canning industry is one of possibilities. It has already been indicated that there has been considerable development during recent years. There are now some nine canneries in the Island, putting up over a million dollars' worth of grapefruit and pineapples annually, and after considerable experimentation a promising start is being made at preparing fruit juices on a large scale for the mainland market.[5] The mountain districts of Porto Rico produce the cheapest oranges that can be raised under the stars and stripes, with the possible exception of those from the Philippines. They are second to no other oranges in the world in juiciness and flavor. Their juice can be frozen in the Island, possibly with the extraction of part of the water, and delivered in New York at a very low cost.



A Hat Factory

Small Scale, Dispersed Enterprises. Porto Rico offers a relatively more promising field for small manufacturers producing goods of high value in proportion to their weight and bulk and employing processes requiring a large amount of hand labor. Highly mechanized and centralized industries are not likely to solve the Island's unemployment problem. Dispersed industries, in which manual operations are used more extensively, may eventually give work to a large part of the Island population. Enterprises of the latter class can afford to import their raw materials and to ship their products to distant markets.

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[5] United States Department of Commerce, *Fresh and Canned Fruit Industry of Porto Rico*, Trade Information Bulletin No. 669, pp. 12, 16-19.

Since it is desirable to build up a local industrial capital, it would seem advisable for this reason also to encourage smaller and dispersed industries in preference to those which are highly integrated and require large investments under corporate ownership. So far as the aptitudes of Porto Rican workers can be inferred from the experience we have at present, they are well qualified to engage in these smaller manufactures. The present distribution of the population, which lives largely in rural communities and small towns, the general availability of electric current, and the comparatively short truck hauls to shipping points favor such development. Among industries of this class are the manufacture of lenses and optical goods, watch crystals, glass covers for typewriter keys, toys, and a multitude of small articles and assembly parts, such as are distributed through five-and-ten-cent stores in the United States.

The principal existing manufactures are those of tobacco and of garments and miscellaneous needle-work products. Both employ a relatively large proportion of female labor. The tobacco industry shows no present promise of expanding beyond the limits set by the local tobacco supply. The needle trades, however, use fabrics and other raw materials imported from the mainland and Europe and have a potential market of undetermined extent both in the continental United States and in the Caribbean countries.

While some fine needle work was made in Porto Rico under the Spanish régime and was known and appreciated in many parts of the world, its production was small and never attained the status of an industry of commercial importance. It was not until the World War interfered with the supply of embroidery work from Europe that mainland merchants turned their attention to the West Indies and the Orient as a possible source of supply. One of the first large American concerns to inaugurate the industry in Porto Rico was a Chicago department store, which sent a representative to the Island who placed in the hands of Porto Rican workers stamped designs, such as were at that time being offered to the American housewife for household use. Porto Rican women soon learned to execute them, and other firms following in the footsteps of this pioneer began placing contracts, at first small, but ever increasing in size, for embroidered articles of apparel for women, and towels and other household linens. One of the principal articles of manufacture in early days were women's waists, locally known as blouses. With the changing styles they have disappeared from the trade, but they were of such importance that their name still clings to the industry.

The following general statement with reference to the needle trades is taken from an unpublished official survey.[6]

> The American firms having needle work done in Porto Rico are, in general (a) linen goods houses; (b) manufacturers of clothing for women and children, who have branch factories here or have work done here under contract, and (c) large retail merchandizing concerns. A few of these latter have their own factories here, but in general they have their work done by contractors. Generally, when they have found a suitable contractor they have given most or all of their later business to him or to her. Some of the largest contractors in the Island work for only one or a few mainland firms, whose operations keep them so busy that they are not interested in new contracts. Of the mainland linen houses having work done here, those operated by certain Oriental Christians (Armenians) almost invariably maintain their own branches here, and not only operate factories, but give a great deal of their work out to women to be done in their homes. Of the linen goods houses belonging to people of European descent, a few maintain here their own branches, but most of them have their work done by contract. The larger mainland houses have experts, well acquainted with costs and methods in the various producing regions of the world, who visit those regions, including Porto Rico, from time to time, arranging the details of contracts. However, after a mainland principal and a contractor have come to know and trust each other, large contracts are often arranged by correspondence, samples being sent in each direction by parcels post.
>
> Another method of procedure is for some individual in New York to come down to San Juan, generally in the Fall months, accompanied by baggage or express shipments of materials for goods for the holiday or some other special trade. Arriving in San Juan on Monday morning, he leaves, with his materials, on the same day for one of the Island towns, generally Maya-

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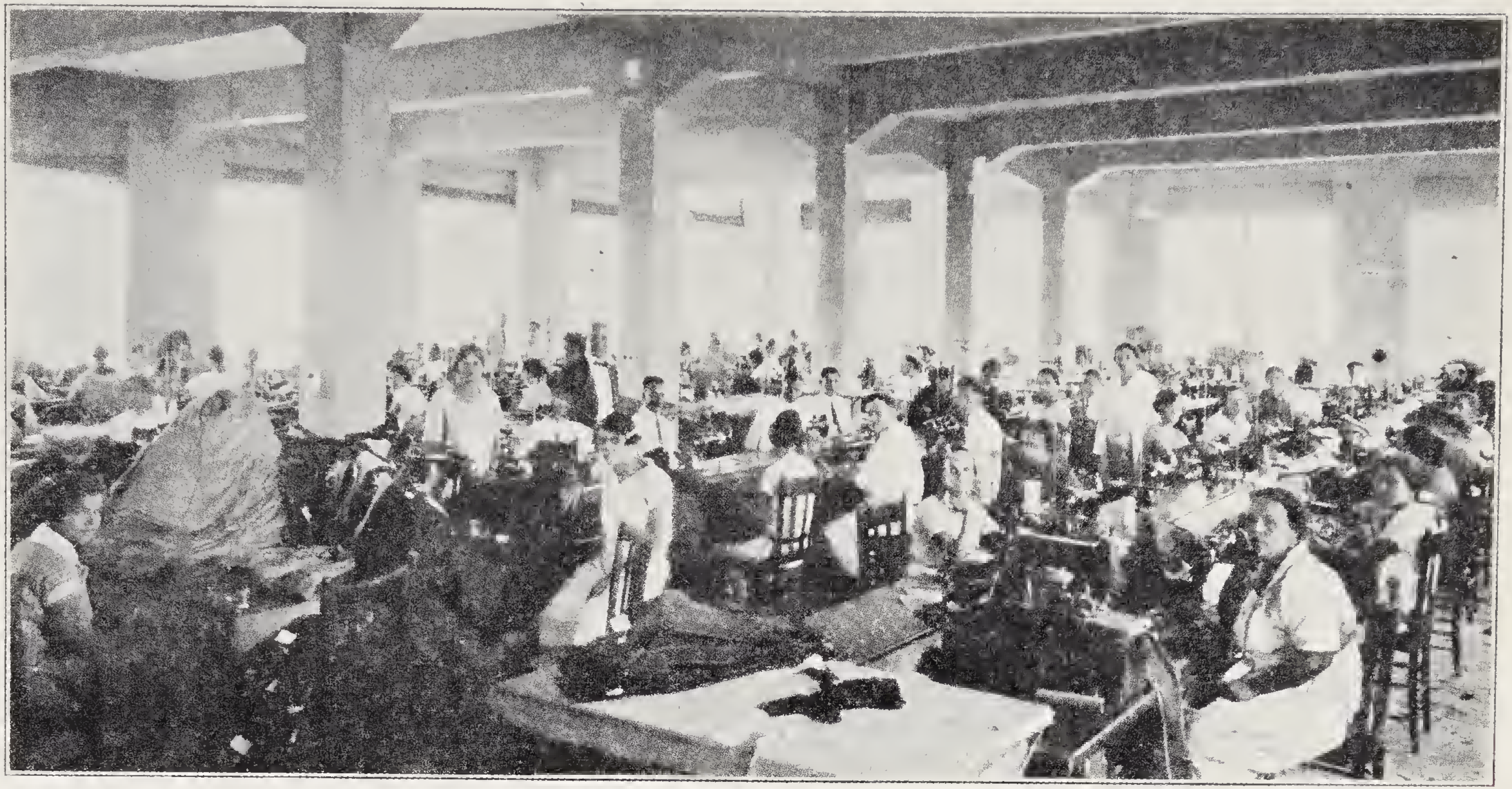
[6] By J. Roderick McKey, Assistant Trade Commissioner, San Juan.



MACHINE ROOM, MEN'S CLOTHING FACTORY

güez. The next day he rents a small place of business and sends out a call for workers. By the second day his work has been distributed to women who take it to their homes for execution. Within a week or so his materials have been elaborated and repacked in the trunks or cases in which they came from New York, and are embarked, with their owner, on a steamer sailing for New York ten days and ten hours after their arrival in Porto Rico.

In the past the bulk of the materials coming to the Island for elaboration, whether in branch factory or by contract, have been shipped by express, both to and from Porto Rico, being handled by an express company operating between New York, where its main offices are located, and towns in Porto Rico. During the current year, it is stated, there has been a considerable amount of work executed on very cheap materials retailing at prices so low that this merchandise cannot afford to pay express rates, so that shipments have been made by freight. Occasionally small shipments, urgently required, are mailed by parcels post; but in general, shipments by this means have been confined to samples, sent down to have estimates made as to prices for quantity production.

There are in Mayagüez some 30 or 40 contractors of recognized standing, and elsewhere in the Island, principally in Ponce and San Juan, upward of that many more. In addition, there are scores of experienced subcontractors. . . .

The bulk of the work thus contracted for is executed by means of household work, the materials being given out to women who do the work in their homes. As far as possible the contractor gives the work to women residing near enough to her place of business so that they can call there to obtain the materials, and again deliver them and receive their pay. However, on large jobs, for quick delivery, it is generally necessary for the contractor to sublet a considerable part of the work. On a job of say 80,000 dozen towels or handkerchiefs, carrying 20 cents per dozen for labor and a 20 per cent bonus, she can give out directly to women in the vicinity 20,000 dozen. The contractors state that the women with whom this direct contact is had, receiving the full 20 cents per dozen allowed for labor, are fairly well paid, and do good work, upon which the contractor makes a profit. The remaining 60,000 dozen, however, must be given out to a number of subcontractors. In theory, these are to pay their workers their full 20 cents per dozen, they, the subcontractors, receiving as their profit a part of the 20 per cent bonus enjoyed by the principal contractor. In practice, it is stated, the subcontractor sometimes holds out a part, up to as high as 50 per cent, of the amount allowed for labor. The result is that the work is poorly done, involving large overhead on the part of the contractor in wages of skilled women employed in inspection and correction, and sometimes considerable losses through rejections by the mainland firm of work which the contractor has passed as being in the twilight zone between satisfactory and unsatisfactory performance. It is stated that these expenses and losses incidental to unsatisfactory work on subcontracts have eaten up much or all of what should have been the profit to the industry during the last year. It is thought possible to remedy this situation by the application to the industry in Porto Rico of a *point* system, similar to those in use in Madeira, Ireland, and other producing regions. That is, a simple measurement of quantity and quality in needle work, which would be readily understood by all concerned, from the principal on the mainland down to the worker in a remote village in the interior of Porto Rico. This possibility is being given consideration by those in the Island interested in the industry.

In the distribution of the materials to the workers in small towns and villages, and in the collection of the finished articles, contractors use sedan passenger automobiles. Numbers of these cars are to be seen traversing the net of excellent highways throughout the Island, loaded, excepting the space occupied by the driver, with unwrapped bundles of materials or finished articles.

Much of the work, before being packed for shipment by the contractors, is hand laundered. Various contractors have experimented with mechanical laundering equipment, but without success. In some cases finished articles are shipped in bulk. In other, especially in the case of fancy handkerchiefs, etcetera, they are put into cartons furnished for that purpose by the mainland party to the contract. The packing cases in which materials are received are used for the return of the finished articles. Additional cases required, because of damage to those received or because of increased bulk of materials, are obtained by purchase from piece goods importers.

It would be impracticable, within the scope of this report, to give ranges of prices for the production of various articles. One or two examples may be given, as indicating costs of articles retailing at low prices. A fair one is that of cutton handkerchiefs for women, having a bit of hand embroidery in one corner:

	Cost per dozen
Cloth in New York	$0.52
Express and insurance to Porto Rico	.05
Paid to contractor in Porto Rico	.30 to .35
Express and insurance to New York	.05
Total	$0.92 to $0.97

Another example is that of a night dress made here in large quantities, and reported to retail on the mainland at two for $1. It is said that for making these the local contractor receives 90 cents per dozen, out of which she pays the transportation cost of the shipment to New York, amounting to 9 or 10 cents per dozen.

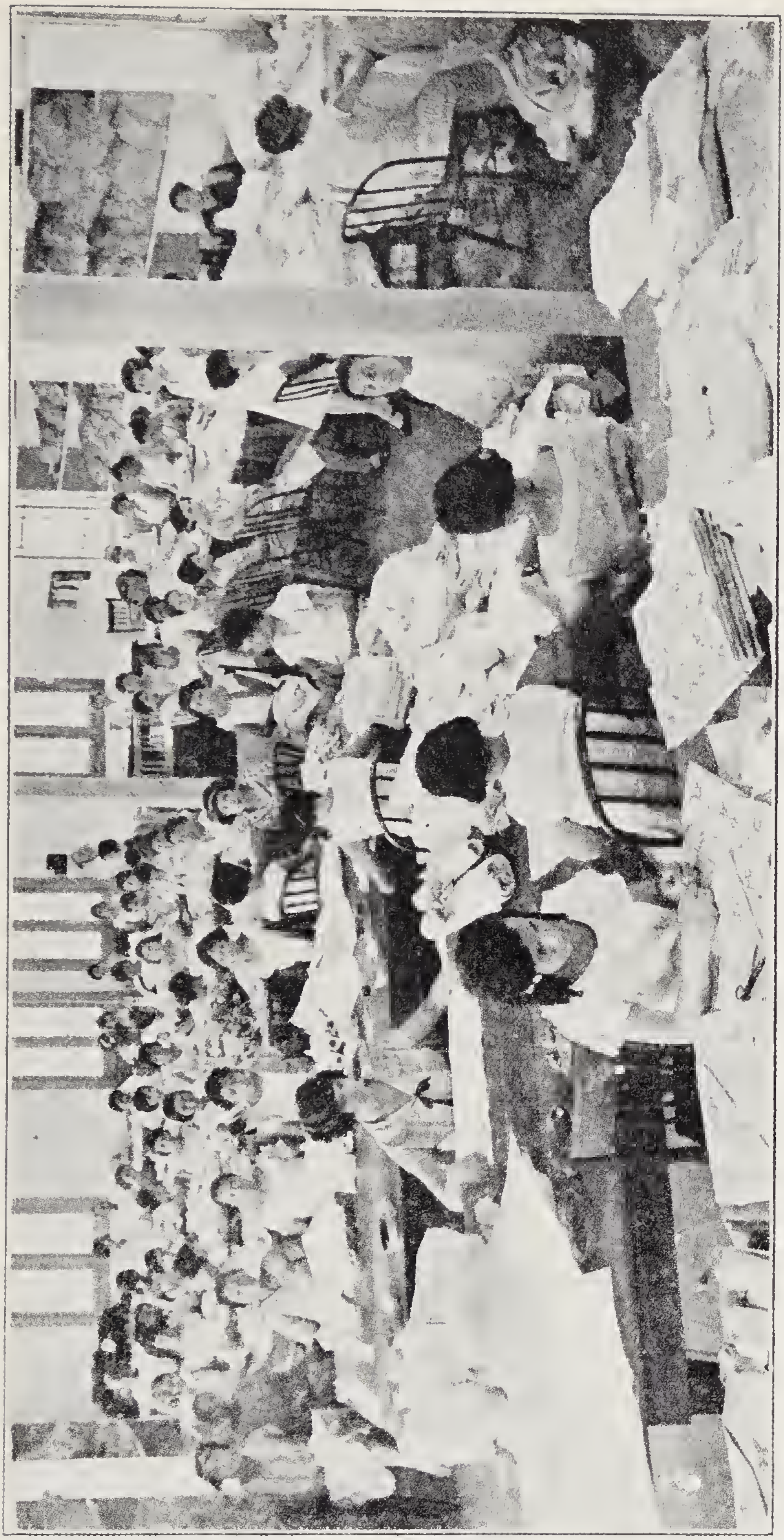
Representative contractors state that the distribution of the payments received by them (including the bonus) is about as follows:

60 per cent for labor
15 per cent for thread and handling
10 to 15 per cent for overhead (including inspection and correction)
10 to 15 per cent profit to contractor

Included in the cotton, linen and silk goods classification is almost every lightweight article of apparel for women and children, from fine dresses down to cheap rompers; handkerchiefs, table and household linens, fancy pillows, etcetera. Practically every one of these articles, including such as cheap rompers, carries at least some bit of hand embroidery. In addition to these, however, there is beginning to be a considerable production of machine-made articles outside the embroidery field. This is especially apparent in suits for men. During the last year shipments of linen suits for men have been in increasing evidence, and there have been some shipments of woolen suits. With the development of its hydro-electric systems Porto Rico now has comparatively cheap motive power. This, taken in connection with its fine climate and its tremendous labor resources, gives it great possibilities for such an industry as this, in which the materials are not so bulky that transportation costs offset advantages gained otherwise.

Piecework rates in Porto Rico are from one-half to two-thirds those prevailing upon the mainland. This difference about covers the cost of freight, of time lost, of extra travel between the Island and the mainland, and of the additional supervision required in the Island. At rates prevailing in Porto Rico, however, girls who give the same assiduous attention to their tasks that is given by operatives in our Eastern cities earn from $9 to $12 a week on sewing machines and up to $17 a week in more highly skilled occupations.

The reputation of Porto Rican needle work has suffered somewhat from the rapid growth of the industry immediately following the war, when the effort to reduce prices to prewar levels encouraged manufacturers and contractors to turn out



Cutting Room, Handkerchief Factory

an inferior product. Simultaneously, a well-intentioned effort of the Island legislature to establish a minimum wage of a dollar a day for women employed in factories caused an increasing share of the needle work orders received from the mainland to be farmed out to inexperienced contractors in all parts of the Island. Since then, standards have risen and better goods are now being made. Although the best Porto Rican needle work is of a quality rarely excelled elsewhere, conditions apparently favor the manufacture of staple goods, such as underwear and middle-priced garments.

During the year ending June 30, 1929, recorded manufactures of this class included, in round numbers, 784,000 dozens of women's dresses, skirts, and waists, 696,000 dozens of women's underwear, 131,000 dozens of children's dresses, and 794,000 dozens of handkerchiefs. All these, as well as other manufactures, including a large amount of men's underwear, are listed under cotton manufactures and are in addition to over a million dollars' worth of linen and well toward a quarter of a million dollars' worth of silk goods.

Porto Rican operatives are capable of acquiring a very high degree of skill. Experts rank some of the needle work done in the Island equal to the best that comes from France. Porto Rican diamond cutters, trained since the war, are rated as competent as the skilled operatives of Holland. Their record for honesty in handling precious stones is higher, so far as the experience of the single establishment engaged in the business goes, than that of European cutters abroad.

Most Island industries of any extent are so dependent upon the mainland for their capital, their management, and their market that a considerable share of their profits goes into the pockets of continental investors. This is true of the needle trades, though not to the same extent as of the tobacco and sugar industries. In fact, some Island manufacturers are reputed to have acquired substantial fortunes out of the garment-making business.

IV. THE PROMOTION OF MANUFACTURES

A legal technicality, upon the details of which it is unnecessary to dwell at this point, deprives Porto Rican manufacturers of the drawback which mainland manufacturers receive, of practically all the duty paid upon imported raw materials subsequently exported in manufactured form. This is already a serious handicap to the Island and will become greater as its industries expand. For example, men's clothing, which is now shipped in increasing quantities to Santo Domingo, Jamaica, Colombia, and Venezuela—exports having risen in value from less than $30,000 in 1924 to $338,000 in 1928—is made for the most part of imported linen, and its manufacture for foreign markets is hampered by a 40 per cent duty which adds from 17 to 20 per cent to factory costs for raw materials. If makers were granted a drawback on these materials when re-exported in manufactured form, they could greatly extend their sales in neighboring countries. The following computation made from the books of a factory manufacturing for the South American market illustrates this:

	Grade A	Grade B	Grade C
Wholesale price	$5.81	$5.16	$4.43
Price of cloth per yard	.60	.495	.6375
Duty on cloth	40%	40%	40%
Number of running yards in suit	5	5	3
Cost of cloth per suit	$3.00	$2.475	$1.9125
Total duty	1.20	.99	.765
Percentage added by absence of drawback to manufacturer's cost for materials per suit exported	20.65	19.19	17.27

The absence of a drawback also handicaps the Porto Rico American Sugar Refinery—the only refinery on the Island doing a large business with the continental United States—which could extend its operations and conduct them upon a firmer foundation if its proprietors were allowed to import Cuban as well as full duty "raws," and upon re-exportation after refining be reimbursed for the duty paid upon these, less the 1 per cent retained under the existing statute by the government. Were Island refiners placed on a par with those of the mainland in this respect, their plants could be more fully and regularly employed and could be enlarged to a more efficient capacity. Furthermore, shipping charges on refined sugar exports could be reduced by utilizing the same charter tonnage which brought raw sugar to the refinery for the delivery of the finished product.

The national government can aid Island manufacturers principally by extending to them the drawback privilege, just mentioned, and also perhaps by placing occasional contracts for making uniforms and other supplies with Porto Rican firms. The Insular government has many additional opportunities to encourage industrialization. The best business opinion of the mainland seems now to be against offering freedom from taxation, bounties, or similar encouragements to prospective manufacturing establishments on the ground that these favors do not promote the best possible localization of such enterprises.[7] The honest advertising of industrial opportunities, however, is an unqualified benefit. The only question is one of method.

Some Porto Ricans favor establishing a publicity agency in New York to advertise the advantages the Island offers new industries, and to induce prospective manufacturers by direct negotiation to establish factories or branches there.[8] Similar governmental bureaus have not hitherto achieved brilliant results elsewhere, partly because the kind of men who make such enterprises a success command higher salaries in private than in public employment. Nevertheless, a general publicity office—perhaps directly under the eye of the government in San Juan itself, but sending competent representatives to the mainland at frequent intervals on contracts that measure compensation by results—might accomplish much toward making Porto Rico's industrial advantages, as well as its tourist attractions, better known upon the mainland. Self-interest alone should induce the steamship companies to employ industrial agents and to advertise industrial opportunities in their guides and sailing schedules. In a word, amply financed, competently directed, and heartily supported, propaganda would hasten the Island's industrial development. But, ultimately, that development depends upon fundamental factors like markets, resources, and labor, the value of which can be demonstrated only by experience.

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[7] An industrial survey of the principal manufacturing cities of the continental United States shows that over four-fifths of their manufacturing growth is due to the investment of local capital in new enterprises, promoted by residents of those cities. The southern states had already built up their cotton manufacturing industry, with home talent and home money, before northern capital was attracted in that direction. So-called "kept industries" that chose their location in response to bonuses or tax favors are to be regarded with suspicion, but all industries must have fair treatment under the laws, if they are to be secured and retained, in view of the keen competition between states and cities within the union for bigger payrolls. Compare, Thorpe, Merle, "The Battle of the Cities for Smokestacks," *New Business World,* February 15, 1930.

[8] Compare Ramón Lebrón, "El Problema Económico de Puerto Rico," *Revista de Agricultura de Puerto Rico,* XXIII, p. 208, November, 1929.

The metamorphosis of any primitive agricultural community into one in which manufacturing is significant necessarily requires time. The process is always accompanied by many failures and the loss of pioneering capital. In Porto Rico, as elsewhere, the change can be hastened by considered means. Factory hands cannot be made in the public schools; but the schools may train factory-minded graduates who comprehend the primary requisites of successful manufacturing. These include regularity, application, skill acquired by practice, maintenance of standards, orderly plant arrangement, adaptability and flexibility of product, the fundamentals of cost accounting, and the elementary principles of financing manufacturing undertakings and marketing their products. Such instruction can be given effectively to enough pupils to accomplish the gradual dissemination of this knowledge throughout the community.

Where the Cane Stands High

CHAPTER XVIII

AGRICULTURE

Since most of Porto Rico's income is derived from the soil and will probably continue to come from that source, her prospective returns from agriculture are of first importance in forecasting her economic future. We have seen that the Island is as to its soil resources but moderately endowed. Like Japan, another overpopulated country, mountains and other untillable areas occupy a great fraction of its area. Even in the lowlands the soil ranges from poor to medium except in the river bottoms and in the arid section of the south coast. The latter has only recently been brought under irrigation, and, therefore, has, unlike much of the Island, not been depleted by three centuries of unscientific farming.

Furthermore, Porto Rican agriculture is subject to severe competition from neighboring countries. The Island is set down in the midst of a sea that is studded with islands more favored than itself in respect to soil resources and that is bordered along the eastern coast of Central America and the northern coast of South America by one of the most extensive tracts of still largely undeveloped tropical agricultural land in the world. Despite its superabundant population, wages are higher in Porto Rico than in several of these competing countries and labor costs are higher than they presumably would be in almost any one of these competitors under conditions of free immigration. Should a period of rapid agricultural development take place along the Caribbean littoral, such as has occurred in Cuba since 1900, wages would probably rise throughout the area, but such an increase of production would subject Porto Rican agriculture to intense competitive pressure. Indeed, such pressure already exists—from Cuba in the matter of sugar and to a lesser extent tobacco; from Brazil, Colombia, and Central America as to coffee; and from Florida and the United Fruit Company plantations along the western Caribbean as to tropical and semitropical fruits. The fact that Porto Rico is an old and, in a sense, a used-up country, located in the immediate neighborhood of countries with virgin or comparatively fresh resources, is a primary factor in its agricultural situation. Its competitive situation has been somewhat mitigated by the fact that it has been included within a protective tariff wall by a country having a large consuming capacity and with only a limited part of its own agricultural territory adapted to the production of subtropical products.

Given these fundamental conditions, what are the prospects of increasing present production or of so adjusting the agriculture of the Island as to enable it to contribute more fully to the economic well-being of the population? Assuming that whatever artificial support it enjoys from the present tariff arrangement will be continued, our attention is naturally directed to the question of whether agricultural resources now used may be more fully exploited or whether some redirection of effort might result in a higher level of real income to the mass of the people.

Porto Rico's agricultural resources received the early attention of the Federal government. Several agents of the Agricultural Department visited the Island and made reports concerning them, and a Federal experiment station was established at Maygüez. Subsequently, the sugar planters started a second experiment station at Río Piedras to make investigations affecting their particular industry. No systematic effort was made by the Insular authorities to promote agriculture until 1911, when the legislature passed a law creating a Board of Commissioners of Agriculture. This Board's principal duties at first were to enforce quarantines against injurious plants and insects and to provide materials for agricultural instruction in the schools. Another step forward was made in 1917 when the new Organic Act established a Department of Agriculture and Labor under a Commissioner, who is a member of the Executive Council. The work of this department has expanded until it now spends well toward a half-million dollars annually, including receipts from special funds and fees, in performing its various functions. Besides valuable routine services, such as guarding the Island against the introduction of noxious plants, insects, and plant diseases, analyzing fertilizers and compiling crop and wage statistics, its constructive activities affecting agriculture fall into three main groups: the conservation of natural resources,[1] the increase of revenue-producing export crops, and the encouragement of local food production by bettering the condition of the small farmers.

The Department's outstanding achievement in fostering export crops was its success, in co-operation with various *centrals,* in introducing cane varieties resistent to the prevalent diseases and yielding a larger amount of sugar per acre than hitherto, and in improving cultivating and fertilizing practice. Although the great corporations would probably have accomplished the same result working independently or in conjunction, the Department contributed largely to the researches upon which these betterments were based and performed an exceedingly valuable service in "putting over" the results of these investigations with less enterprising plantations and *colonos.* Similar work is being done for tobacco and coffee which are raised as a rule by comparatively small growers who as a body are less ready to adopt improvements than the sugar planters. The export fruit industry is largely in the hands of continental Americans who keep conversant with the advances made by mainland orchardists, and the cultivation of Sea Island cotton is still a minor industry. Both, however, receive technical attention from the Department and from private agencies.

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[1] Hitherto the Department's conservation work has been devoted chiefly to reforestation, which is obviously the first task to be undertaken in the tree-denuded Island. Early in 1903 President Roosevelt created the Luquillo National Forest, containing between 12 and 13 thousand acres of former Spanish crown lands which had become by treaty the property of the Federal government. In addition, the Insular government owns some 40,000 acres of wooded country, much of which, however, consists of comparatively small tracts ranging from mangrove swamps on the coast to isolated interior mountain summits. These parcels are under the control of the Department, and where necessary are being replanted with trees of economic value. In addition, considerable areas of private lands are being reforested from Insular nurseries in co-operation with their owners. A well conducted forestry station is maintained at Rio Piedras with substations at inland points of different climate and elevation. There seems little doubt that the income of Porto Rico can be increased appreciably by replanting waste lands with trees of economic value. This includes substitution of timber for coffee on lands having an elevation exceeding 2,500 feet.

I. COMMERCIAL AGRICULTURE

Porto Rican agriculture has long laid its major emphasis upon the production of three great export staples—sugar, tobacco, and coffee, to which fruits, coconuts, cotton, and other minor products make fairly important additions. This development has had both a natural and an artificial basis.

It is natural in that it exemplifies the ordinary principle of economic specialization by which an area of peculiar resources, climatic and otherwise, tends to devote its major attention to those lines of production in which it has the greatest advantage as compared with other areas. The same sort of development is amply exemplified on the mainland in our highly specialized Wheat Belt, Cotton Belt, tobacco areas, regions of intensive butter production, and the like. Porto Rico has naturally specialized in those tropical or subtropical crops for whose production it was well adapted and for which a ready market was to be found through New York or other channels in the United States or abroad.

Tobacco Under Cover

The development has been artificially influenced to the extent that the tariff, notably on sugar, has tended to give that crop a pecuniary advantage somewhat disproportionate to the degree of technical superiority which the Island enjoys for the production of this crop as compared with others.

But whether naturally or artificially, commercial advantage has lain in the direction of producing these crops, and it has been quite vigorously exploited not merely by native business interests but also by large-scale organizations which have brought adequate capital and excellent management from the outside. Given these conditions of adequate resources and the suitability of these crops to large units of operation, it was but natural that the sugar industry and, to a lesser extent, the tobacco industry should have been brought within the influence of a vigorous, corporate type of large-scale development. This has resulted in the very effective use of the land and in the development of highly efficient methods of production. Today the sugar area has developed close to the limit set by the physical characteristics of the Island and the tobacco area to about the limits of the consuming market under present standards of taste in consumption. Some development along similar lines has already taken place in connection with citrus fruits, but here the line of competition is very keen with the highly developed, not to say overdeveloped, citrus industry of the mainland. Only very recently the Mediterranean fruit fly has appeared as a menace to the horticultural industry of Florida. Should control measures prove ineffective it is conceivable that the competitive position of Porto Rico may be improved and that lands more suitable to orchards than to cane or tobacco fields may enjoy considerable development. There is a possibility also of some additional irrigation developments. It may be said broadly, however, that the progress in these three lines of production, and to some extent away from coffee production during the last few decades, has tended to effect a reasonably accurate adjustment of the industry along lines of highest profitableness and has brought under cultivation practically all of the land suitable for the production of these staple commercial crops.

Since the existing distribution of staple crops has been determined by well-defined and easily recognized causes—such as soil, altitude, and rainfall—it will not change materially. While there will always be temporary crop shifting on marginal lands in response to price fluctuations and similar influences, and some land now in minor crops will probably be put into cane with the extension of irrigation, no great augmentation of Porto Rico's agricultural revenues is to be anticipated in this direction. Since the possibilities of fruit growing appear to have been not fully explored, there seems the greatest likelihood that expansion will be in this direction. This crop, like coffee, is exposed to maximum wind hazards, so that insurance premiums will be a heavy item in production costs. This, however, is a risk that Porto Rico shares with all its Caribbean neighbors and Florida. Since export fruits, especially oranges, can be intercropped with coffee, these two industries are likely to be associated in the future.

A Tobacco Field

Much interest has been directed to the possibility of developing new lines of commercial agriculture to augment the Island's exports. On the dry, unirrigated, or partially irrigated lands near the coast and in a few valley uplands, Sea Island cotton has been grown successfully in sufficient quantities to support a central gin near San Juan. Excessive fluctuations of prices and such enemies as the pink boll worm have discouraged extensive planting, but 20,000 or 30,000 bales can be raised without serious competition with other crops. Porto Rican Sea Island cotton commands a high price, and, as mentioned elsewhere, the establishment of a local mill to spin it into thread yarns only awaits an assured and adequate supply. Other fiber plants like sisal can be grown in restricted localities. Peanuts thrive in the sandy coast soil, and other oil-producing plants are a possibility.

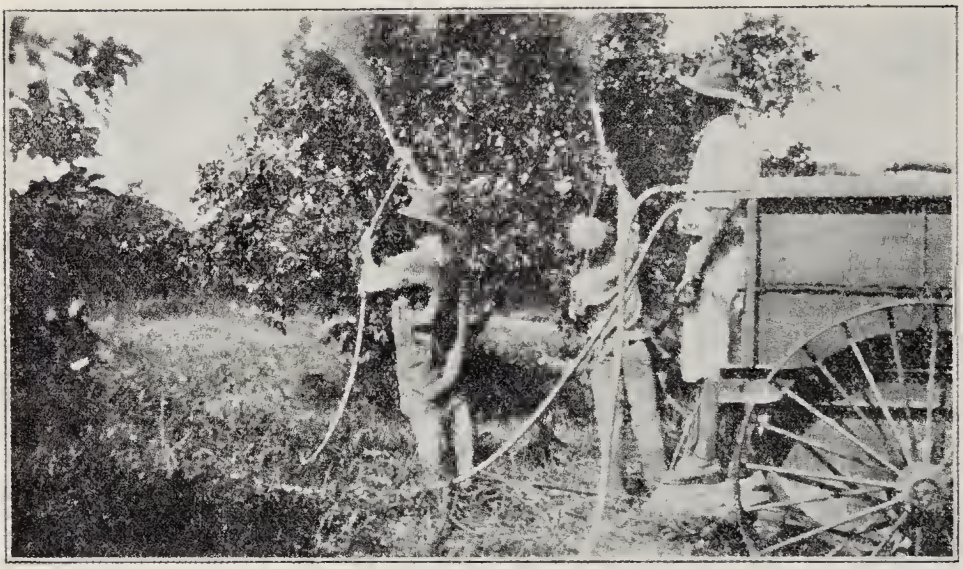
A tropical nursery business supplying ornamental plants, usually grown in hothouses, to northern markets and selected stock to the Caribbean countries may be developed. Vanilla, cocoa, and the mulberry tree have also been suggested as possibilities. The latter is a particularly attractive suggestion, since it is coupled with the thought that Porto Rico's cheap labor might be trained to reel silk and thus develop industrial as well as agricultural employment. However, no commercial demonstration of the economic possibilities with silk, cocoa,

SHIPMENTS OF FRESH FRUITS AND VEGETABLES TO NEW YORK
(Number of cases)

Kinds Shipped	1926	1927
Avocados	36	1,050
Bananas	378	2,164
Citrons	547	1,003
Cucumbers	278	190
Dasheens	664	1,577
Eggplant	1,671	9,863
Ginger	657	444
Grapefruit	691,313	857,599½
Lemons	202	155
Limes	79	187
Mandarins	3	7
Mixed fruit	320½	316½
Oranges	319,914	366,085
King oranges	33	13
Satsuma oranges	....	10
Peppers	4,723	11,568
Pineapples	497,197	638,830
Plantains	2,383	311
Pumpkins	332	633
Squash	......	38
Tamarinds	41	191
Tangerines	1,073	2,334½
Tomatoes	6,087	7,970
Watermelons	41	191
Total	1,527,972½	1,902,730½

or vanilla has ever been made. While there is quite a group of comparatively small, miscellaneous agricultural industries which may gain a foothold in the Island, none of them affords promise of adding to the agricultural income of the Island as much as any of the major staples that have been exported in the past. They would contribute, however, to stabilizing the cash income from agriculture, which is now highly speculative from lack of diversification.

Native farmers have rarely tried to raise vegetables and fruits for export, although both branches of business offer opportunities for the small grower. Their possibilities are indicated by the preceding table showing exports (almost entirely by growers who have come from the mainland) in 1926 and 1927, the last years before the hurricane of 1928 created abnormal conditions.



Spraying Fruit Orchard

One reason why the native farmer has not engaged in fruit growing and vegetable raising may be that these industries were originally undertaken primarily to supply the New York market. This is *terra incognita* for the *jíbaro* and he was, therefore, unable to grasp the intricate details of grade, package, and taste requirements which must be met if a profitable market is to be built up. But this hardly explains why educated Islanders have not entered the industry. One reason for this backwardness, however, may be discovered in the following comment by an Island official:[2]

> Contrary to the conditions prevailing in the coffee industry, the fruit farms are being handled mostly by the individual growers who live on the farms themselves. They live in comfortable dwellings in many cases provided with all modern

Hull Photo

Coffee and Coffee Pickers

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[2] Commissioner of Agriculture and Labor, *Report*, 1924-25, p. 43.

> conveniences. They have proved the country a pleasant place to live in. The growers are mostly continental Americans, who came to the Island years ago. They represent a progressive element in our agriculture.
>
> . . . The development of our fruit industry has been due in great part to the fact that the farmers actually live on the farms. Our native farmers, in general, present a marked contrast with the continental fruit grower. Our native farmer, as soon as the farm begins to produce a fair income, has a decided tendency to move to the town, to enjoy modern conveniences and pleasures of life.

Turning now from the question of area to that of yield, there seems to be no present likelihood that acreage yields—except for coffee[3]—will hereafter be increased remarkably, as they recently have been for sugar cane by scientific seed selection and better field methods. While the area in coffee may be curtailed rather than extended, yields per acre can probably be doubled or even quadrupled by well-tested improvements in plantation practice, such as scientific seed selection, better tree distribution, pruning, and fertilizing, all of which are now neglected. Inter-cropping of fruits with coffee has been suggested and to some extent tried as a means of increasing the income per acre in certain districts, but thus far the methods employed have not proven entirely satisfactory. Probably more is to be expected from the inter-tillage of food crops, to which we shall refer later.

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[3] The coffee industry has been declining in recent years. Some of the reasons for this may be gathered from the following quotations:

"It is a fact generally understood that coffee planting has had a precarious existence for several years. Very few planters are truly owners of their property. Many of them are perforce tenants at will working for the benefit of the creditors to whom their plantations are mortgaged. But all have lost hope of securing remunerative prices and are abandoning their lands to the hands of nature, merely performing the indispensable labor of weeding, picking the best of the crop and marketing it . . . The product per cuerda, including the best lands, fluctuates in the neighborhood of two hundredweight, and at present prices do not pay the cost of keeping up the plantation."—*Séptimo Informe Anual del Negociado del Trabajo dirigida á la Asamblea Legislativa de Puerto Rico*, 1920, pp. 35-36.

"In 1925-1926 we reported optimistically as to the future of coffee in this Island. Within a few years our exports of coffee, which fell to 14,837,436 pounds in 1922-1923, had risen gradually to . . . 26,330,189 pounds in 1925-1926. The total value of our exports likewise increased from $2,780,912 in 1922-1923 to $7,082,714 in 1925-1926. Considering these facts we had sufficient reason to be optimistic.

After reviewing the effects of the storm of 1926, which destroyed 40 per cent of the coffee crop of that season, the Commissioner continues:

"The total coffee exports for the year were 18,961,009 pounds valued at $5,626,302. This represents a decline of 28 per cent in quantity and 20.7 per cent in value from the previous year. Germany took 25.35 per cent of our coffee, Cuba 24.86 per cent, Spain 20.24 per cent, Italy 11.59 per cent, the Low Countries 7.44 per cent, France 3.54 per cent, and Switzerland 2.03 per cent. The coffee consumed by the United States does not merit mention as it is extremely small. Our exports of coffee to Cuba have declined appallingly (i. e., from nearly 48 per cent of the Island's exports, or 11,500,000 pounds in 1924-25 to less than 25 per cent of the Island's exports, or under five million pounds in 1926-27). Cuba was the most important consumer of our coffee. . . . She is laboring to develop the cultivation of this crop in her province of Oriente."—*Informe del Comisionado de Agricultura y Trabajo al honorable Gobernador de Puerto Rico*, 1926-27, pp. 21-22.

II. SUBSISTENCE CROPS

The aggressive promotion of commercial crops, particularly sugar and tobacco, has not been paralleled by similar development of products for domestic consumption. To some extent, indeed, the production of subsistence crops has suffered in the process of commercial agricultural development. It is, therefore, natural that those who are concerned to bring about a raising of the standard of living in the Island should look longingly upon any unused lands as a possible resource for the stimulating of production of crops which could be used for domestic consumption or local trade. Porto Rico's ability to raise far more produce for home consumption than it does at present, without materially lessening the amount of land in export crops, was demonstrated when the World War threatened to cut off outside supplies. In that emergency the Governor appointed a food commission, under whose energetic direction the area in food crops was increased from 137,000 acres in the autumn of 1917 to a maximum of nearly 335,000 acres at the end of the following April.[4] This new cultivation appears not to have encroached upon cane and coffee plantings, but some marginal tobacco lands were shifted to corn and vegetables for both, instead of only one, of the two annual crop seasons. The decline of this branch of agriculture as soon as organized effort to promote it relaxed and trade conditions returned to normal is difficult to explain except on the theory that this kind of farming is not remunerative. Apparently a development that was socially desirable proved to be economically unprofitable.

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[4] Governor's *Report*, 1918, pp. 656, 657, 695.

Official Testimony. General food crop statistics are not gathered and the most authoritative statements concerning them are no more than intelligent guesses. Even the Agriculture Department's field agents do not venture to give estimates in figures. Evidently a certain amount of land that might produce food now lies idle, and presumably a complex of conditions exists in Porto Rico limiting this form of agriculture. Discussing this question in his report for 1924, the Commissioner of Agriculture and Labor said:[5]

> Food crops are planted principally in the interior of the Island in elevated or mountain country. Their cultivation should be encouraged, for they form the basis of the rural population's food. They have commanded very good prices this year. Yautias, yams, and sweet potatoes are nourishing and require little attention. Many tracts of pasture and other lands are not under cultivation that could be planted in these crops. This year's corn crop has been good on account of excellent weather conditions. The corn areas in Sabana Grande, Yauco, and Peñuelas, in spite of large yields, have not supplied the needs of the Island and it has been necessary to import from Venezuela and Santo Domingo.

Maize is not the staff of life in the Island to the same extent that it was with the Indians or as it is in many Latin American countries. Incidentally, we must remember that even Mexico is forced to import this grain. It grows well in Porto Rico and was formerly an important food crop in the foothill country, where it has been displaced by sugar cane. One of the earliest studies of the agricultural resources of the Island made under the American government reports:[6]

> The climate, rainfall, and soil of Porto Rico indicate upon the whole a good country for corn. Farmers report a crop of 60 bushels upon virgin land of good quality and 20 to 25 bushels on old land. This is equal to the average crop in the Corn Belt of the United States. A further evidence of the corn-producing capacity of Porto Rico is shown by the exports.

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[5] *Informe del Comisionado de Agricultura y Trabajo*, 1923-24, p. 13.

[6] House Document, 171, 56th Congress, 2d session, p. 20.

In 1897 Porto Rico exported to Cuba 4,246,776 pounds of corn and 7,946 pounds of corn meal, and to Spain 30,133 pounds of corn. No corn was imported that year, thus showing that Porto Rico produced more than sufficient for home consumption. It should also be taken into account that the interior of the Island could furnish no portion of this surplus, because, with the exception of one military road, there were no roads in the interior on which it could be transported to the coast.

This was an exceptional condition, however, as the Island usually imported corn, and was probably due to the extreme depression of the sugar industry.[7]

Contrasted with this situation in 1897 is the following report on this crop almost 30 years later:[8]

> Corn production in the Island has gradually diminished with the growth of the sugar-cane industry. Large tracts of land in Peñuelas, Guayanilla, Yauco, Sabana Grande, and Lajas were usually planted to corn during August of each year. The expansion of the sugar-cane area, and especially the Uba type of cane which is so well suited to dry-land conditions, has practically done away with our corn area. Cayey and some other interior towns, and the Isabela-Quebradillas corner, still raise corn, but our total home production has been cut down fully one-half in recent years. This explains why the Island imported $420,919 worth of corn grain and corn meal during the past year. Corn cultivation is not recommended when planted along with sugar cane, or near sugar cane fields, since the corn plant is a favorite host for the aphis that transmits to cane the cane mosaic. The Cuban and Jamaican governments have gone as far as prohibiting the planting of corn in the sugar cane fields.

A year later the Commissioner reported more optimistically:[9]

> The cultivation of corn has received great impetus during the year. Prices have been high because nearly all the country's consumption is supplied with corn imported, mostly from Santo Domingo. Encouraged by high prices, farmers sowed large areas in corn, especially in the mountainous districts, where this crop alternates with tobacco. In Porto Rico tobacco is heavily fertilized. Since the crop is harvested within 90 days it does not use all the fertilizer applied and a succeeding crop of corn or beans profits by this. In many districts as soon as the first crop of tobacco is out corn and beans are sown in

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[7] Compare Hitchcock, F. H., *Trade of Puerto Rico*, p. 42.

[8] Commissioner of Agriculture and Labor, *Report*, 1924-25, p. 54.

[9] *Informe del Comisionado de Agricultura y Trabajo*, 1925-26, pp. 53-54.

the fields to share the land with tobacco ratoons. In the semi-arid district in the southwest section of the Island, including the municipalities of Sabana Grande, Yauco, and Lajas, corn still holds its own as an important and profitable crop, despite the increasing cultivation of Uba sugar cane. When sown in August during the rainy season it thrives well and can be harvested in December before it is planted in the rest of the Island.

Rice, which is one of the principal items of the laborer's diet, has never been an important crop. Referring again to the early survey of the Island's agricultural resources just mentioned:[10]

> In former years Porto Rico produced considerable rice, and the only reason why it might not again is that there is very little level land easily flooded except near the coast, and this can be more profitably devoted to sugar cane. On the mountain summits, where there is a surplus of rain during the rainy season, small fields are raised without flooding. Here, however, the mole cricket (gryllotalpa) attacks it and does considerable damage. It is probable that Porto Rico will continue to import the rice required by her people.

How negligible the crop is at present, despite the effort of the Insular authorities to encourage its cultivation, is indicated by the following quotation from the Report of the Commissioner of Agriculture and Labor for 1925:[11]

> "Upland" rice is planted in certain sections of the Island by many small farmers. It was extensively planted during the Spanish days, but the acreage has been greatly diminished in recent years. This has been due to decreasing yield due to degeneration of the old *criollo* seed. A vigorous campaign has been under way by our field force to encourage rice cultivation. Selected varieties, very well adapted to our conditions, have been propagated and demonstrations have shown material increases in the yields. Our statistics show the acreage planted to "upland" rice to be 2,422.5, with an estimated yield of 12,514 quintals valued at $101,176. Although this rice is still consumed in the farms, never reaching the market, its production on a large scale is contemplated as highly beneficial. It is used unpolished and is thus much more nutritious than the imported article.

The following year a drought reduced this modest area by nearly 400 acres.

[10] House Document 171, 56th Congress, 2d session, p. 20.

[11] Commissioner of Agriculture and Labor, *Report*, 1924-25, pp. 53-54.

The third food crop of some possibilities is beans, which are also an article of popular consumption. In the report of the Commissioner of Agriculture and Labor already quoted the following reference is made to this crop:

> Our Island imported $2,118,156 worth of beans and dry peas during the fiscal year. This is an exorbitant quantity if we consider that beans could be produced here easily. The red Kidney Bean of the Northern States does not grow well here, but the red native beans and the white bean thrive well. They could be produced in great quantities.
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> In Cayey it is a well-known practice to plant red native beans prior to planting tobacco. This rotation is highly beneficial because the soil is kept in perfect tilth all the time. Furthermore, the effect of a leguminous crop on the following crop (tobacco) is beyond any question. The Cayey tobacco section alone, using this method, is calculated to have produced 3,000 quintals of beans. Unfortunately, other tobacco sections do not follow this practice. The Department is encouraging it as highly beneficial to the Island. Cowpeas seem to be admirably suited to our soil and weather conditions. They are among the easiest crops to produce, especially when combined with a crop like sugar cane. During the war, large quantities of cowpeas were produced in the cane fields and used for local consumption.

Ample areas of land now lying uncultivated appear to be available for plantains and bananas, yautias, and other vegetables already produced in the Island.

The yautia is a tuber richer in food elements than the potato and keeps well enough to ship to New York. Under favorable conditions it produces enormous crops, sometimes exceeding ten long tons an acre.[12] The dasheen, a close relative of the yautia, already familiar to American consumers, thrives well in the Island. Bananas and plantains are planted to shade young coffee trees and in the past have formed an important item in the ration of coffee plantation laborers. In 1920 the census reported over 18 bearing plantain or banana trees growing on farms for every man, woman, and child on the Island. Adding to these the number growing in dooryards and kitchen gardens, the total represented a very large item of food supply. Unfortunately, pests and disease have considerably reduced this crop.[13]

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[12] *Revista de Agricultura de Puerto Rico,* XXIII, III, September, 1928.

Livestock and Dairying. Neither milk nor meat has ever constituted an adequate part of the country laborer's ration.[14] Nevertheless, before the American occupation Porto Rico exported live cattle and hides to some extent and grazing was one of the chief industries in the coastal lowlands. In his report for 1925, the Commissioner of Agriculture and Labor said:[15]

> The development of our sugar industry which followed the American occupation has been one of the most serious drawbacks to our cattle industry. The adaptability of cane to lowlands previously devoted to pasture and grazing; the irrigation of our southern coast with the subsequent sugar "fever," brought about a diminution and even complete conversion of whole regions, previously devoted to cattle raising, to sugar cultivation. Only such land indispensable for maintaining the working oxen needed to haul the cane was kept for pasture. Thus the rapid development of sugar in the Island brought a marked decline to our livestock industry.

In recent years dairying has made considerable progress, especially in the country tributary to San Juan, where there are large tracts of level land with excellent pastures. The grade of livestock has been improved by the introduction of pure breed Holsteins, Jerseys and Guernseys.[16] Nevertheless, Porto Rico is still largely dependent upon imported dairy products and even the government authorities do not look forward to a time when the Island will supply all its needs.

Most of the cattle slaughtered are superannuated draft oxen whose flesh is naturally inferior. Recently cattle have been imported from Texas to slaughter for the San Juan market.

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[13] "These plagues are perhaps more responsible for the decrease in our production than even the hurricane of San Felipe."—*Revista de Agricultura de Puerto Rico*, XXIII, 72, August, 1929. Porto Rico lies north of the commercial banana belt and, even were other conditions favorable, could hardly anticipate such an economic stimulus from the extension of this crop as Jamaica has recently received.

[14] Brau, Salvador, *Las Clases Jornaleras de Puerto Rico*, p. 48; del Valle Atiles, Francisco, *El Campesino Puerto-riqueno*, pp. 88-89, 101.

[15] Commissioner of Agriculture and Labor, *Report*, 1924-25, p. 46.

[16] *Ibid.*, pp. 47-8.

The native pigs are characterized by the Agricultural Department as "perhaps our most degenerate type of animal," although pork is the peasant's favorite meat.[17]

It is claimed that 400,000 acres of uncultivated land are available in the mountainous interior portion of Porto Rico and that much of this is suitable for the development of a livestock industry.[18] Cattle, goats, swine, and domestic fowl all thrive in the Island and it is possible that livestock, dairy, and poultry products might be produced in quantities sufficient to improve considerably the diet of the people and even yield some product for export. Surfaced roads and electric current are already widely enough distributed to place cold storage and truck transportation within reach of the mountain farmers. Certain forage crops like *yaraguá* or molasses grass, which grows well and will carry many head of cattle on mountain sides now lying useless, have been demonstrated a success in Porto Rico. Were their farms well stocked, the small coffee planters' fertilizer problem would be half solved. Whether Porto Rico could ever export eggs, cheese, and condensed milk to the mainland in competition with highly organized continental producers may be doubted. But it might find a considerable market for these products packed expressly for tropical consumption in the neighboring islands and republics. Butter is not likely to be produced—at least beyond local needs—but with an abundant supply of milk and vegetable oils, butter substitutes might be manufactured to advantage.

III. LAND TENURE IN RELATION TO AGRICULTURAL DEVELOPMENT

The idea is frequently expressed that the situation as to land ownership and land tenure in Porto Rico has a considerable influence on the character of the agriculture. The idea seems chiefly to be that the prevalence of large-scale farming and the growth of corporate ownership in the production of the staple export crops has tended to discourage the production of food crops, whereas the small farmer, even though engaged primarily in producing commercial crops, could profitably use for food production bits of land not suitable to their production and remnants of time not required for their care.

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[17] Commissioner of Agriculture and Labor, *Report*, 1924-25, pp. 49-51.

[18] *Revista de Agricultura de Puerto Rico*, Vol. XXII, p. 166, April, 1929.

In order to say conclusively whether this is actually the case or to what extent it has come about, some very careful and intensive studies of the land economics of the Island over a period of several decades would have to be made. In the absence of such an authoritative study, however, some general data may be presented which will shed a certain amount of light on the situation.

Most of the flatlands in Porto Rico have always been in fairly large estates held originally under royal grants and cultivated by slaves; but the hilly interior was settled to a great extent by squatters and small farmers who carved homesteads for themselves out of the virgin forest. Statistics of farms and farm ownership are so inconsistent that the following census figures, supplemented by the returns of the survey of hurricane damages made in 1928, are merely suggestive:

Year	Farms	Farm Owners
1896	60,893	50,753 [19]
1899	39,021	36,137 [20]
1910	58,371	46,799 [20]
1920	41,078	36,047 [20]
1928 [21]	53,385	.....

In 1917 there were 477 individuals, partnerships, and corporations possessing holdings of agricultural land in excess of 500 acres, who owned in the aggregate 537,193 acres, or over 26 per cent of all the rural land upon the assessors' rolls. They leased in addition over 123,000 acres, so that the total area under their control exceeded 37 per cent of the lands reported for taxation. Since the average assessed value of those lands was over $143 per acre, as compared with an average of $53 for the entire Island, these 477 holders owned nearly one-third, and controlled through ownership and lease together over one-half, of the assessed capital land value of Porto Rico.[22]

These figures record a condition which may not have changed radically for several years, because concentration of land ownership, which has continued since that date, represents the fusion of large properties into still larger properties more than it does the extinction of small holdings. Incidentally, even in the sugar region the common custom of dividing landed estates among heirs, who often are numerous in this country of large families, tends to maintain temporarily the number of rural properties, if not their aggregate area.

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[19] Owners.

[20] Farms occupied by owners.

[21] Senate Document 180, 70th Congress, 2d session, p. 13.

[22] Senate Document 165, 65th Congress, 2d session, p. 46; Governor's *Report*, 1918, pp. 405, 407.

According to the assessors' rolls the number of rural properties *(fincas)* owned by individuals increased from 71,183 in 1922-23 to 81,635 in 1927-28, but there was a decrease in the total acreage of such properties. In addition some 95,000 cuerdas of rural property in 1923 and 124,000 in 1928 were owned by corporations. More cane land alone, however, than these figures indicate is controlled by corporations and the acreage of such land in the hands of bona fide individual owners is decreasing. A classification of properties according to size is given above for each of these years, together with data showing the total area included in the properties making up each size-group.

From the table it will be seen that of the 10,452 additional properties in 1928 there were 7,378 measuring less than five cuerdas each. It is probable that this increase mainly represents plots along improved highways occupied primarily for residential purposes; for in Porto Rico, as elsewhere, the social

INDIVIDUAL PROPERTIES OF DESIGNATED SIZES, AND AREA COMPRISED IN EACH SIZE-GROUP, 1923 AND 1928.

Size of Property [a] (In cuerdas)	Number of Properties		Total Area	
	1923	1928	1923	1928
Under 5	21,837	29,215	53,548	69,026
5 to 10	15,899	18,082	108,636	123,690
10 to 20	14,077	15,075	192,051	203,639
20 to 50	11,340	11,454	338,550	344,771
50 to 100	4,161	4,136	287,049	279,478
100 to 500	3,498	3,351	647,764	639,294
500 to 1,000	278	242	192,664	169,086
1,000 or over	93	80	159,320	132,567
Total	71,183	81,635	1,979,582	1,961,551

[a] The reader should notice that in this table and also in the one on page 498 the uneven class interval used gives a somewhat faulty impression of the form of the distribution.

and economic attractions of well-traveled roads—in these days of buses and other cheap transportation—are rapidly drawing the people to their borders. In part, however, the increased number of very small properties is to be explained by the subdivision of land among heirs; a process by which in time a farm becomes little more than a cluster of home sites.

The above table, showing the number of separate properties in the Island, does not, of course, show how many landowners there are. A second table, therefore, is given below to show landowners classified according to the total area of all properties owned by them. The data given here are only approximately accurate, the greatest source of error being that the assessors' rolls are kept by municipalities. Where an individual owns land in more than one municipality his name appears in the tax record of each municipality concerned. No correction of this error was made, and, therefore, in the table below a landowner with properties in several municipalities is counted not as one owner but as several owners. Error from this source is, no doubt, greater in the upper than in the lower brackets of ownership, since large property holders are more likely to own land in several municipalities. Whenever similar names recurred on the tax record of a single municipality they were treated as one owner when names and addresses were in exact correspondence; and as different owners when there was some distinguishing factor such as initial or address. Error from this source is probably small.

Concentration of land ownership and the extension of cane-growing area at the expense of other crops have presumably

Number of Individual Landowners, by Size of Aggregate Holdings 1923 and 1928.

Total Area Owned (In cuerdas)	1923	1928
Under 5	13,251	16,454
5 to 10	11,549	12,356
10 to 20	11,118	11,304
20 to 50	9,631	9,605
50 to 100	3,879	3,789
100 to 500	3,399	3,383
500 to 1,000	336	297
1,000 or over	124	122
Total	53,287	57,310

reached their maximum in the six predominantly lowland municipalities along the southern coast, a portion of each of which lies under the ditches of the government irrigation works on this side of the Island. These municipalities begin with Patillas on the east and end with Ponce on the west, and they have an aggregate area of 297,500 acres. The changes that have occurred in crop distribution and in the number of farms and farm ownership in these lowland municipalities since the Spanish census of 1896 are shown in the following table:

	1896[23]	1920[24]	1928	Per Cent Increase	Per Cent Decrease
Acres in cane	16,809	.....	61,000	262.9	....
Acres in food crops	10,843	.....	7,463	.....	31.2
Number of farms	6,867	3,160	.....	.....	54.0
Number of farm owners	5,541	2,649	.....	.....	52.2
Average farm area	53.7	94.2	.....	.....	....
Average farm land per owner	53.7	111.9	.....	108.4	....

The increase in the cane area to over three and a half times its extent 35 years ago has been largely at the expense of pasture, which was always held in large tracts. The decrease of less than 3,400 acres in minor crops can hardly be ascribed to a dearth of land suitable for producing food. The hill country, which is best adapted economically for food production, contains relatively more small farms.

Many farms of small or moderate size still survive in the lowlands in the midst of the large sugar plantations. These are in general fertile, sometimes irrigated, and are among the highest priced lands in the Island. The large owners do not by any means monopolize the most fertile lands. Yet the owners of these small farms of superior quality buy imported provisions at the local stores in the same way as do the peasants in the mountains. Even the little government homesteads established in fertile lowlands at the public expense for the express purpose of encouraging a class of small independent farmers have been planted chiefly in cane rather than in vegetables or fruits.[25]

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[23] Carroll, Henry K., *Report on the Island of Porto Rico* (1899), pp. 118-19.

[24] Fourteenth Census Bulletin, *Agriculture in Porto Rico*, Table I.

[25] *Memorial de los Trabajos de la Comisión de Hogares Seguros*, 1915-24, pp. 122, 138.

No clear-cut causal relation can be shown between the size and tenure of farms and the areas cultivated in food crops. We have already pointed out that the growth of the large sugar plantations has in some instances clearly displaced food crops, but that small farms in the same regions have also given over some corn, beans and other subsistence crops to the production of cane. It is reported elsewhere in this survey that some of the big plantation owners devote their lands to the production exclusively of their commercial product, without any attention to subsistence crops, even where they could be fitted into a farm organization plan to advantage; and that such companies when operating through tenants sometimes discourage or flatly prohibit the raising of such crops. This is by no means a universal rule, and some of the larger land owning or operating concerns make definite plans for the fitting of food crops into their scheme of operations, but as a rule these projects have not proved remunerative. It would seem that careful attention to possibilities in this direction would permit of a substantial increase in subsistence crops on the Island without interfering in any serious way with commercial farming operations. However, other factors are more significant in explaining the relative backwardness of subsistence farming than is the mere size of land holdings.

IV. THE PERSONAL EQUATION IN PORTO RICAN AGRICULTURE

The popular and facile explanation of the fact that the farmers of Porto Rico do not direct their efforts toward producing the largest feasible fraction of the Island's food, an explanation offered alike by Island, continental, and Spanish critics, is that the native is too lazy to earn a decent living on the land. After the hookworm was discovered to be the cause of anemia in Porto Rico, however, these slothful qualities were ascribed to pathological instead of moral, social, or climatic conditions.

It has already been shown in Section II of this chapter that the failure to produce a larger quantity of subsistence foods as formerly is in considerable part due to the fact that such agriculture has proved unremunerative. It is feasible, nevertheless, to increase the production of "frutos menores" for the consumption of the individual family, and with improvements in marketing facilities for sale in the urban communities. With the decline in uncinariasis the Porto Rican farmers and rural laborers have demonstrated that they are able to work if not as arduously and efficiently as some laborers in the North, at least patiently and upon the whole effectively. No person who has visited the Island's cane plantations and tobacco farms during the planting, cultivating, and harvesting season will doubt that.

They are, however, ignorant and backward and difficult to educate in modern methods of cultivation. It is not necessary to go to the mountains to discover this. The best studies of the small farm community that we have chance to be from a coastal district in the northwest corner of the Island, where the government has recently provided irrigation. Preliminary studies of this district show that the 33,000 acres surveyed for the purpose of laying out ditches and determining the acres to be served with water embraced 2,100 farms, of which 1,400 were less than ten acres in extent.[26] The president of the commission appointed by the government to study agricultural conditions in this region thus reported.[27]

> The agricultural district that we are called upon to organize presents a sad example of the inefficiency of our agriculture. Our visits to the properties in this district have brought to our attention tracts of land planted in coconuts, sugar cane, tobacco, coffee, and "frutos menores," where the soil is unsuitable, where cultivation is neglected and where the crops are in such poor condition as to explain why the farmers believe that they cannot make a living and pay their taxes from their lands. Farmers owning 60 to 100 acres, who in other places would be people in comfortable circumstances, are living miserably in ramshackle houses without the most primitive conveniences of living. They do not raise what they consume in their family and might easily produce it on their own land. They buy imported food at the nearest store at high prices, when they could produce cheaper and better food on their own farms. Most of these farmers are ignorant of the benefit of irrigation and none of them knows how to irrigate. Many have planted coconuts on soil unsuitable for that tree, which requires no irrigation, and every farm we visited cries out for

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[26] *Revista de Obras Públicas de Puerto Rico,* January, 1927, Vol. IV, p. 1089.

[27] *Ibid.,* March, 1927, Vol. IV, p. 1167.

soil improvement, seed selection, proper methods of cultivation and intelligent irrigation before it can produce profitable crops.

Like other districts presenting conditions attractive to capital and intelligent management, this region is rapidly turning to sugar. At last reports, of the 7,339 acres cropped, nearly 53 per cent were cane fields.

This degree of specialization in the leading commercial crop is probably fully justified on economic grounds. Likewise, standards of efficiency established in the sugar industry by the big operating companies and copied by the smaller operators have resulted in this part of the agricultural resources of the area producing returns which probably approach fairly close to the maximum which could be obtained. On the 47 per cent of the land which is devoted to other crops, however, cultivation, on the whole, is poorer and management less intelligent, and neither yields nor financial returns approach the theoretical maximum as closely as they do in the sugar industry. It is among the minor crops and the smaller operators, therefore, that opportunities for stepping up productivity appear to hold greatest promise.

The problem of the small farmer in Porto Rico is, in fact, like that of his brother on the mainland, primarily one of more intelligent leadership. If he can be helped to apply his own labor in the most effective manner to the land resources within his reach, he could produce much that would contribute to the raising of his standard of living. In so far as this meant more adequate nourishment and better health for the rising generation, it would remove the most serious present obstacle to making educational efforts effective. As in all such efforts it is the first steps which are most difficult, and such efforts as have been made thus far have been seriously handicapped by the illiterate and undernourished condition of the mass of the rural population. The conclusion seems inescapable, however, that this is the point at which the attack must be directed in the future if results of any wide significance are to be accomplished.

One of the principal lines of effort of the Insular Department of Agriculture has stressed just such educational work with the small planters and peasants. Thousands of rural families still remain in a state of isolation uncommon on the mainland. Many small farmers are illiterate and cannot be reached through the printed word. There is no rural free delivery. Heads of families often let several weeks pass without visiting the post office. Newspapers, magazines, and advertising circulars rarely or never reach their hands. Consequently, most of the educational work of the Department must be done by word of mouth through personal visits.

A number of devices familiar on the mainland have been adopted to meet this situation. Seven model farms have been established, which farmers are encouraged to visit. They reach only the more enterprising and intelligent, however, or some 3,000 visitors annually, out of the 30,000 or 40,000 farm operators in the Island. Demonstration plots aggregating nearly 2,000 acres have also been planted on private farms, the Department supplying the seed, fertilizers, and implements for this purpose. The Agricultural Department furnishes lecturers and demonstrations for the institutes of rural teachers. Some 200 farmers' meetings are held annually in country schoolhouses and public halls to discuss questions of practical interest to those who attend. These reach from 10 to 12 thousand people, predominantly from the agricultural classes, in the course of the year. Farmers' tours have been inaugurated. Agents of the Department conduct parties of agriculturists from one district to another for the purpose of visiting efficiently conducted farms and demonstration plots cultivated by the Department. In making up the parties care is taken to have them consist of people interested in a particular branch of farming, such as stock raising, poultry raising, and the like, or in a particular phase of agricultural operations, such as irrigation or fertilizing. Transportation is provided by automobiles and public buses. From 20 to 30 such tours are conducted annually.

In connection with this educational work tested systems of crop alternation and diversification are demonstrated. The authorities also supply the service of blooded stock for breeding, and have built dipping tanks at accessible points to assist in exterminating the cattle tick.

V. ECONOMIC INSTITUTIONS AND AGRICULTURAL DEVELOPMENT

Whatever the merits and the shortcomings of the Porto Rican farmer as an agricultural worker and farm manager, it seems evident that much can be done to improve his agricultural situation through better economic organization. Possibilities in this direction, though numerous, can be conveniently discussed under three general heads: rural credits; marketing and co-operation; and agricultural education, particularly along lines of efficient farm organization and management.

The rural credit institutions of the Island have already been considerably improved. The Federal Farm Loan and Intermediate Credit systems of the mainland are available also to agriculturists of the Island, as already pointed out.[28] These facilities plus the improvement of general banking conditions, in part through the growth of the Federal Reserve system, have made credit available in adequate quantity at reasonable rates. Obviously, however, this means available to the individual whose financial position is such as to make him a suitable object for the extension of credit. As in our own Southern states a large number of farm producers find themselves unable to avail themselves of credit on the more favorable terms extended through these agencies fostered by the government. They are so deeply in debt and have so narrow a margin of earnings above actual subsistence needs that they find it difficult or quite impossible to put themselves in a position to meet the requirements which must be enforced by a commercial bank or by an agricultural credit association under the Intermediate Credit system. Hence, they continue to use store credit at high rates of interest and with the necessity of selling their product often to poor advantage through the agency which has financed them. Such a result is almost inevitable, since the one who has extended them production credit has done so on the security (often quite speculative) of the crop which was being produced.

The remedy for this situation may come in either one of two ways, or from combination of both. One is better organization for marketing through co-operative effort or otherwise. The other is through improvement of the efficiency of the farming business itself.

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[28] See page 393.

If the marketing problem could be solved, more satisfactory credit would follow. Many small farmers raise cane or tobacco, just as our Southern farmers raise cotton, simply because there is always an open cash market for these crops, and hence someone is ready to make credit advances on them. The absence of a constant quoted market for food crops makes credit extension for raising them difficult or impossible, and hence discourages the growing of corn or beans, even where such production would be more to the advantage of the farmer and the community.

At present the prices paid for local products in Porto Rico fluctuate widely from place to place, sometimes varying 100 per cent or more between neighboring towns, depending closely upon the relative abundance or scarcity of the immediate supply. There is also marked fluctuation over short periods of time in response to seasonal gluts and shortages.

Although Porto Rico is a land of perpetual spring and summer, it has well defined planting and harvesting seasons. These crop periods are determined chiefly by the amount of rainfall, but also depend somewhat on economic causes, like the tobacco season, or the peak demand for labor in the larger industries. The result is that the market is likely to be oversupplied with native produce, and prices often fall to a point unprofitable for the producer just when the latter is ready to sell his crop. Furthermore, he must sell quickly, because produce soon spoils in the tropics and he has no facilities for storage.

Concerning the present facilities for marketing these products, Professor José C. Rosario, of the University of Porto Rico, says:

> *Frutos menores,* as the miscellaneous food crops raised in Porto Rico are called, are not sold through organized marketing agencies which collect them at the farm and deliver them to the retail dealer or the consumer. In order to ascertain what degree of co-operation in selling their produce might exist among our small farmers, students were sent to spend a night in the market at Río Piedras with instructions to question the country people who brought produce there to sell.

The results of these inquiries are presented in the following table:

DATA ILLUSTRATING MARKETING PRACTICES

Arrival at Market	Distance to market (In kilometers)	Kind of Produce Brought	Price Received for Lot	Sold to Peddler	Sold to Consumer
7:00 p. m.	9	300 avocados	$2.50	x	
7:00 p. m.	25	Pineapples and banana leaves	.80		x
7:10 p. m.	12	70 ears of fresh corn	1.00	x	
7:15 p. m.	15	8 cwt. sweet potatoes	14.00		x
7:15 p. m.	12	52 lbs. pumpkins	1.56		x
7:30 p. m.	20	400 flowers	2.00		x
7:30 p. m.	20	30 lbs. peas	3.00	x	
7:30 p. m.	22	12 chickens	12.00		x
7:30 p. m.	22	400 eggs	12.00	x	
8:30 p. m.	13	4 cwt. yautias	12.00		x
9:00 p. m.	60	2,000 plantains and 15 cwt. yautias	107.50	x	
9:20 p. m.	20	75 lbs. beans	6.00	x	
9:25 p. m.	22	5 cwt. sweet potatoes	8.75	x	
9:35 p. m.	15	Peppers and pumpkins	1.40	x	
10:00 p. m.	50	5,000 mangoes	30.00	x	
11:15 p. m.	20	200 avocados	5.00		x
11:40 p. m.	18	8 chickens and 40 eggs	8.15		x
4:00 a. m.	8	Fruits and lettuce	1.60		x
4:30 a. m.	10	400 bananas	2.80		x
4:40 a. m.	7	200 plantains	6.00		x
5:00 a. m.	13	80 lbs. sweet potatoes	2.00		x
5:00 a. m.	15	250 eggs	8.75		x
5:30 a. m.	9	2 bags peppers and lettuce	1.20	x	
5:30 a. m.	15	60 lbs. pumpkins	1.80	x	
5:30 a. m.	14	30 lbs. beans	2.25	x	
5:45 a. m.	8	400 avocados	9.00	x	
5:45 a. m.	8	Peppers, tomatoes, pumpkins	.87		x

With the exception of produce from places so far away that it was impossible to bring it on horseback or on foot, no co-operation at all existed. Six people brought a few dollars' worth of fruits or vegetables from the same *barrio* in Carolina, wasting their whole night and part of the next day to make sales aggregating only $43.75. Most of these people could have sold their produce directly to consumers, yet they chose to dispost of it to middlemen, who in some cases made 100 per cent profit on sales. The 300 avocados mentioned in the table as sold to a peddler for $7.50 were retailed by the latter at 5 cents each, or a total of $15.

It is pitiful to see our *jíbaros* spending a good part of the night walking to town to sell produce worth one or two dollars, followed by other *jíbaros* carrying equally small quantities, when one person might easily handle the whole transaction.

Condensing the table above we have the following figures showing the market returns of the small farmer:

Amount Received for Produce	Number of Farmers
Less than $1.00	3
$1.00 to $2.00	8
$2.00 to $3.00	3
$3.00 to $6.00	3
$6.00 to $10.00	5
Over $10.00	6

Evidently the method of marketing in Porto Rico calls for reform. The present system, or lack of system, involves so much waste of time and labor that the price of local produce is unnecessarily high, thereby limiting demand and curtailing production. For example, the city of Caguas with about 15,000 inhabitants, receives farm products from Aguas, Buenas, Cidra, Comerío, Cayey, Coamo, Ponce, Peñuelas, Humacao, Gurabo, Juncos, and Río Piedras. Peddlers from Caguas visit all these towns to buy produce to sell in Caguas. This causes a great deal of useless going and coming, and produce is needlessly carried back and forth over the same road before it is finally sold. A truckload of peppers and yautias will pass through Caguas on its way from Ponce to Río Piedras. The next day a peddler from Río Piedras will hire a touring car to take some of these peppers and yautias back to Caguas to sell in the market there. Frequently, this peddler is followed by another in a second touring car carrying similar produce to sell at the same place. In a word, the price of local produce is unnecessarily high because of (1) duplication of transportation, (2) duplication of labor in retailing, and (3) unnecessarily high cost of carriage because hired touring cars are used to convey food crops.

Efforts have been made by the Insular Department of Agriculture to promote the marketing of Island produce, especially coffee and tobacco, through governmental or quasi-governmental agencies. Some of these have been associated with the Department of Agriculture and Labor, but the latter has no distinct marketing division. The dispersion of money and energy in this field and the failure to build up a permanent marketing office in the Department with a technically trained and experienced personnel has militated against the full success of these efforts. Endeavors to organize the trade in Island produce in the interest of growers might meet opposition from importers and exporters. But a purely informational service supplying daily data as to produce prices, stocks, and demands in different centers would be of value to everyone and could be extended to perform other functions as the need arose. Porto Rico lies so apart from the leading world markets and her farmers are still as isolated in respect to centers of demand for local produce within the Island itself, that daily market bulletins posted at every public telegraph and telephone office and at other points where they would catch attention would from the outset be of real value to many producers and would render increasing service as the people were taught their advantage. Arrangements might be made to receive mainland and foreign quotations through the government radio service, which now transmits to a restricted circle baseball and football scores and other news of less vital importance to the people of the Island.

A flexible and well-organized market system would take local surplus crops from the point where they were depressing prices unduly and distribute these products in such a way as to relieve a scarcity and high prices at other points. The great improvement in the road system facilitates such a development, and it should be accompanied with a carefully planned system of warehouses and cold-storage plants which would reduce waste and spoilage to a minimum. The recent development of efficient and economical electric refrigeration methods furnishes a real opportunity for doing this in a way which would prove a boon to the food supply situation in such a tropical region.[29] Possibly canning and other processing plants might also be added.

Both with reference to these more perishable products of local food consumption and also with reference to the marketing of the staple products of the Island, particularly coffee and tobacco, it seems clear that the co-operative form of organization is distinctly called for. The marketing problem for the smaller Porto Rican producers is quite complicated, and yet it is one which should lend itself readily to treatment through the institution of agricultural co-operation.[30] These products must be sold in a distant market and are of a sort in which attention to quality and knowledge of consumer demand both as to product, package, and method of sale loom very large. The situation shows striking similiarities to that in the horticultural industry of California, where co-operation has shown such success.

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[29] The wise planning of all branches of agricultural production so as to furnish as even a flow as practicable for the various crops which enter into the food supply should at the same time be made an important consideration in farm management planning. This we shall refer to presently.

[30] See also Appendices G and H.

In the marketing of tobacco, for instance, the smaller farmer has suffered from the lack of standardization or any adequate knowledge of the trade requirements for his product or the premiums paid for superior grades. Tobacco has generally been bought on a flat-price basis, which has tended to discourage effort on the part of the farmer to cultivate improved varieties or to exercise other than ordinary care in the curing and preparation of tobacco for market. He has generally secured production credit largely in the form of supplies during the planting and growing period, and was required to repay these advances as soon as the tobacco was harvested. Facilities for warehousing the tobacco and having it graded and classed as a basis for further credit while waiting for a better market, were practically unknown. Neither was there opportunity for him to acquaint himself with conditions of supply and price in the tobacco market in which his product would normally compete.

To supply these needs and give the farmer an adequate merchandising service so organized as to develop his bargaining power to the maximum, co-operative organization has been proposed and indeed tried in several localities during the last few years. Much work remains to be done, however, before a satisfactory system of co-operative tobacco marketing can be developed. In particular, it would seem that the selling function of all local associations would have to be concentrated in the hands of a single overhead selling agency, and that this organization would have to build up a highly efficient statistical and market analysis service if it were to dispose of the Porto Rican product to the best advantage in the available markets. It would need also to establish a strict system of grading and develop through the local association a means of supervising production in accordance with these standards. This selling agency should also adopt a policy of co-operation with manufacturers and dealers who have an established trade in brands of cigars which call for the use of Porto Rican types of tobacco.

Co-operative organization as a whole faces in Porto Rico much the same problems as it does on the mainland. Though in particular instances it has been distinctly successful, there have been many disappointments and many lessons are yet to be learned. Failure seems largely to be explained in terms of two major difficulties.

In the first place, methods of co-operative organization and management—the peculiar technique of this form of economic enterprise—had until recently been only imperfectly worked out. Such enormous progress has been made in the last few years, however, as to give excellent prospect for better results in the future. Furthermore, the plan of credit extension which was given recognition in the Intermediate Credit system is based upon the use of co-operative agencies for the extension of both marketing and production credit. This alignment between credit and marketing work offers a strong inducement to co-operative development in the future. Furthermore, the Federal Farm Board, recently established in the United States, is set up with the distinct intention of fostering co-operative organizations of producers throughout the field, and it is but reasonable to expect that its aid will be forthcoming to Porto Rican co-operative organizations as soon as agricultural interests in the Island put themselves in a position to with with and through the facilities afforded by this Board.

The second difficulty from which Porto Rican co-operatives appear to have suffered in common with those on the mainland and in other countries, concerns personnel, both management and membership. Here the experience of the past and the helpful leadership of the Federal Farm Board should do much, particularly as concerns officials and technical employees. The other phase of the question, however, is that the rank and file of membership must have an understanding of the peculiar requirements of co-operative business and a willingness to do their part. Undoubtedly, Porto Rico is in this regard under a rather serious handicap, similar in its nature to that found among cotton and tobacco producers in our own Southern States. The removal of this handicap will proceed just as rapidly or just as slowly as general systems of education—

adult as well as adolescent, by experience and popular discussion as well as through formal classroom training—are developed.

What has already been said has repeatedly laid emphasis upon constructive efforts at scientific study of the economic problems of Porto Rican agriculture and the dissemination of this information by such practical methods and in such easily assimilated form as to enable it to reach enough of the population to become an effective pace-making factor. The agricultural situation of Porto Rico differs from most sections on the mainland in that large corporate enterprise occupies so prominent a place. These large capitalistic producers build up specialized staffs to handle their own problems, both commercial and technological. They study production costs, analyze market conditions, arrange for their own financing, and determine the most profitable lines along which to guide their industry. There is but little with reference to them which could be said as a result of our survey. On the other hand, there is a considerable number of small producers whose position is analogous to that of the ordinary farmer on the mainland, and also a larger number of small holders who occupy a very different position. For these two groups it would seem that public agencies could and should bestir themselves to a more aggressive type of organizational and educational service than that now rendered.

In this there would simply be developing in the Island a situation characteristic of agriculture on the mainland. Here it has been customary for many years for institutions supported by public funds to perform the research and education work necessary for the guidance of agriculture along the lines of greatest profit. At the beginning this work was limited primarily to activities looking to the improvement of the technique of agriculture, as it has been in Porto Rico. In fact, experimental and educational work along the lines of increasing production is being competently handled in the Island.

Within recent years, however, the agencies devoted to bettering the condition of the farmer on the mainland have quite generally adopted the view that their field covers not merely the science of agriculture but also the business aspects of the industry. As a result, an enormous amount of work is being done along practical lines of farm management, the determination of production and marketing costs, the improvement of marketing practices, co-operative organization, and the like. The object in all this has been to secure the continuous adjustment of agriculture to changing conditions in such a way as to effect the most suitable utilization of land, choice of crops, use of machinery, and the most intelligent and efficient relations to outside institutions for marketing and financing.

It appears that this effort for the most efficient economic organization of agriculture has not been developed with anything like the same skill and aggressiveness in Porto Rico. This is doubtless due to the fact that on the one hand we have the large well-officered corporations which have little need for such assistance and, on the other hand, a great group of illiterate laborers and squatters who are practically outside the reach of such efforts. In between is a group which could benefit to a great extent from the development of such activities, and educational effort should be constantly directed toward presenting the results of such studies in such simplified form as to reach down to the humbler classes of small proprietors. Experience on the mainland seems to indicate clearly that such popularization of information as to best methods of farming can be carried by word of mouth far beyond the reach of the printed page and that it results in a better choice and fitting together of the several lines of production. To accomplish this end Federal aid in agricultural extension work and in vocational education (Smith-Lever and Smith-Hughes Acts) should be extended to Porto Rico on the same terms as to the states on the mainland.

Obviously, it is not appropriate to attempt to say just how far the production of livestock, food crops, and other products necessary for the subsistence of the population of Porto Rico can be carried. We do, however, have no hesitation in expressing the belief that, if effort were consistently and aggressively devoted to a study of the problem of fitting minor agricultural enterprises in with the major lines of production which will doubtless continue to dominate the agriculture of the Island, a considerable increase might be effected in the food supply of the common people without subtracting from the export production from which agricultural interests now derive their chief income.

The Bureau of Agricultural Economics of the United States Department of Agriculture has developed an elaborate system of crop estimates, price quotations, grading and inspection work, outlook reports, farm management studies, and many others which have been of enormous benefit to the agricultural industry of the mainland. The work of this branch of the Federal government has been important not alone in its direct application to the problems of particular groups of producers, but likewise in devising methods and furnishing leadership to the staffs of the Experiment Stations of the several states. These lines of service have not been made equally available or have not been taken advantage of as fully by the agricultural interests of Porto Rico as by many groups on the mainland, where they have been tested and have proved their value in practical farm affairs. Porto Rico is, however, a part of the United States, and it should participate fully in the work of the United States Department of Agriculture and of the Federal Farm Board as it develops.

PINEAPPLE FIELD

A first step should be that of developing a statistical service comparable to that maintained in other parts of the United States. The Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics furnishes an admirable standardising directional service. Unfortunately their funds are somewhat limited, but the service could readily be provided for if Congress were persuaded to make quite moderate provision specifically for the extension of this work to cover the agriculture of Porto Rico. The several states of the Union co-operate in varying degrees with this work of the United States Department of Agriculture. Those which are most advanced establish a state crop and livestock statistician with a small clerical force so that local enterprise in conjunction with the Federal system results in getting a quite complete and accurate statistical picture of the agriculture of the given state and making available to that state the best pertinent information of a like character from other areas. In addition, therefore, to seeking more adequate support of this work through the Bureau of Agricultural Economics the Insular government of Porto Rico should itself provide funds sufficient for setting up a local statistical office on the Island and for securing through local agricultural agents or otherwise a suitable flow of information as to local production, prices, market movements, and other pertinent information.

Such a development of an informational service is basic to all wise planning and adjustment of agricultural operations in the Island. It should, however, be followed as rapidly as possible by the development of a strong marketing service which would include standardization of products, warehousing, transportation, and co-operative organization.

With this foundation in terms of adequate statistical information and a more efficient marketing machinery both domestic and export, a scientific study of problems of formal farm organization and readjustment in the direction of most profitable combination of enterprises could be pushed forward, although to be handled adequately this would require more liberal appropriations than are now made available to the work. Experience on the mainland, however, seems clearly to indicate that agriculture cannot be put upon the most productive and efficient basis unless intensive public attention under the direction of trained specialists is applied to the problem.

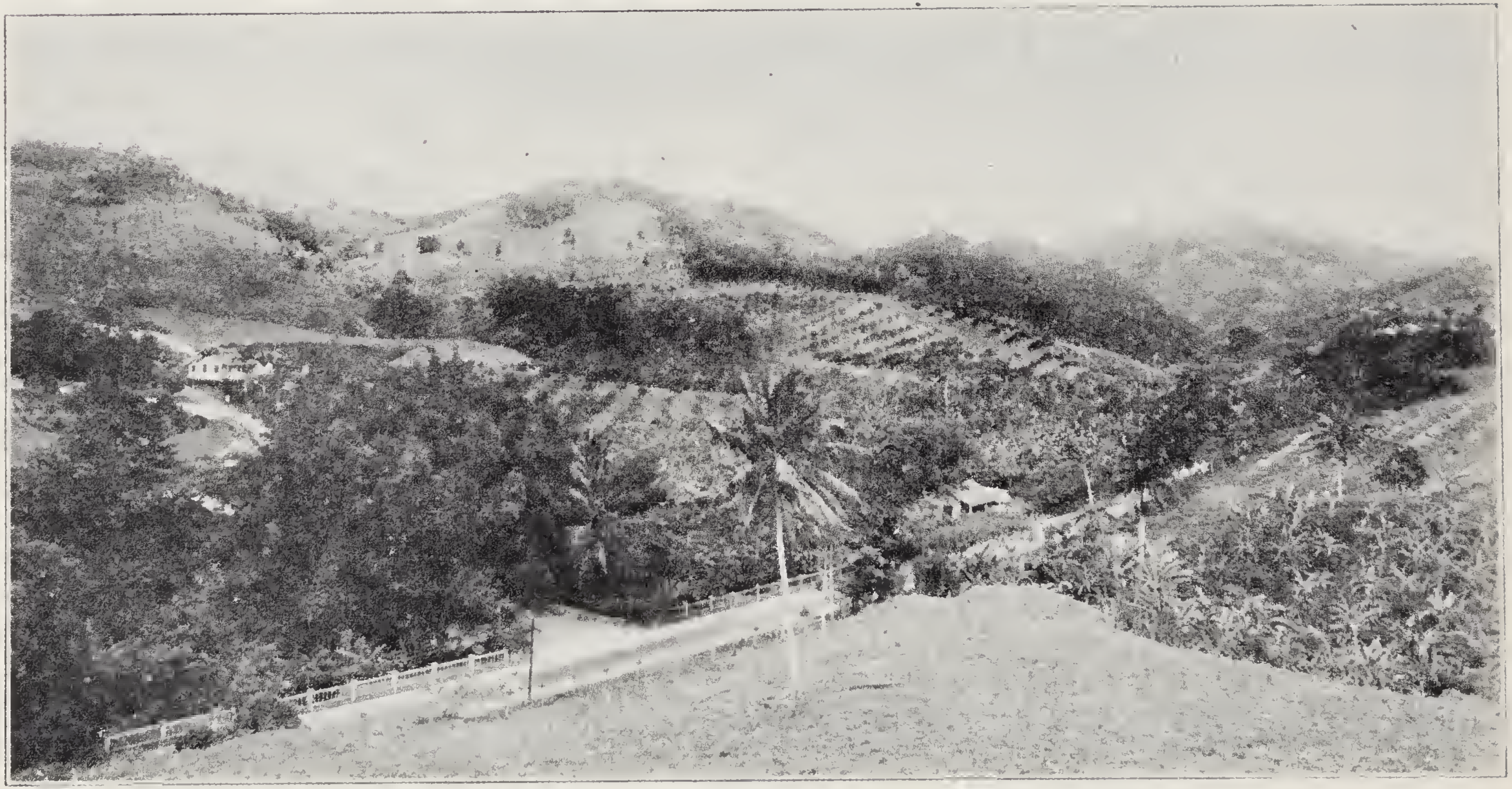
CHAPTER XIX

ECONOMIC BETTERMENT

We now return to the basic problem of raising the standard of living in Porto Rico outlined in the introductory chapter. It was there indicated that the growth of population lies at the root of Porto Rico's economic difficulties, resulting in low wages, unemployment, and inadequate subsistence. Any program of economic betterment that is to prove permanently helpful must, therefore, seek either to reduce population or to expand production through an improved utilization of the physical resources of the Island. In this chapter, we shall try to draw together the threads of our analysis and focus attention upon certain broad and fundamental phases of the problem as a whole. Our first attention will be given to the possibilities of relieving population pressure by means of emigration.

I. EMIGRATION

Possible opportunities for Porto Rican workers outside the Island are of two kinds: as unskilled laborers in the tropics—generally as field hands on sugar plantations—and as skilled or unskilled laborers in the States. The first opening usually presents itself as a chance to join a party of recruits consisting of several hundred workers and perhaps their families, whose cost of travel is paid by their prospective employers and who contract to serve the latter for a definite period. On the other hand, workers migrating to the mainland, whether skilled or unskilled, usually go as individuals or in family groups, pay their own expenses, and take their chance of finding employment in their new home. Most of these migrants have some slight resources of their own and some knowledge of English and are qualified to take positions rather better than those of common laborers. Only in one instance, and that not altogether fortunate in its outcome, has an effort been made to use Porto Ricans on the mainland for the class of work that



Typical Orchard Landscape

is commonly done by Mexicans. That is the only form of employment, however, likely to absorb enough workers to relieve appreciably the situation on the Island.

Mass Migration. Opportunities for employment are open in the rapidly developing Caribbean area, in spite of the overpopulation of certain parts of it, like Porto Rico, Haiti, and Jamaica. But English-speaking negroes of the British islands and French-speaking negroes of Haiti will work for lower wages and are better fitted for the rude tasks of opening undeveloped country and laying out and cultivating tropical plantations than are the white or part-white Porto Rican mountaineers, with their physical handicaps of ill health and malnutrition. A mass movement of Porto Rican labor to the neighboring tropics is, therefore, as unlikely as it is inadvisable. Educated natives will doubtless find employment in the neighboring islands and republics in positions for which the superior educational facilities of their own country have prepared them. In fact, they are already doing this. But there is little opportunity for the *jíbaro.*

The experiment has been tried. Before the World War small groups of Porto Rican laborers migrated to Santo Domingo and Cuba in search of employment and seem to have prospered for the time being in their new home.[1] In the spring of 1919 the Insular legislature enacted a law to regulate the recruiting of labor in Porto Rico. This statute provided that Islanders emigrating to work for an employer in another country should be protected by a contract approved by and registered with the Insular Department of Agriculture and Labor. Under this law some seven hundred laborers went to Cuba to work on sugar plantations, and 130 women were taken to Brooklyn to work in a cordage factory. Friction between employers and employees occurred in both cases, and Cuba has now found cheaper sources of plantation labor in Jamaica and Haiti.[2] In a word, while a few laborers do go, and may continue to go, to the neighboring islands in search of work, there is no present indication that this movement will increase sufficiently to alleviate appreciably population pressure.

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[1] *Segundo Informe Anual del Negociado de Trabajo,* p. 109.

[2] *Séptimo Informe Anual del Negociado del Trabajo,* pp. 19-27; *Octavo Informe Anual del Negociado del Trabajo,* pp. 9-18.

In 1900, shortly after Porto Rico and Hawaii came under the American flag, several parties of emigrant laborers were recruited in Porto Rico for Hawaiian plantations. This resulted in the transfer to Hawaii of some five thousand people, followed several years later by a few smaller parties, of whom perhaps two thousand and their descendants still remain in the territory.[3] Several of these have prospered and most of them are probably better off in their new home than they would have been in their native land.[4] But were Hawaii to substitute Porto Ricans entirely for the present Filipino and Oriental labor force on its plantations, it would have negligible effect upon the Island's population increase.

In 1923 and 1924 a representative of the Insular Bureau of Labor visited Hawaii and California and the southern and western states of the Union with a view to finding work for some of Porto Rico's surplus population, but without immediate results. The following year a representative of the Bureau visited the Dominican Republic upon a similar mission, but discovered that wages were so low in the neighboring island, on account of Haitian and Jamaican competition, that it was inadvisable for Porto Rican laborers to seek employment there.[5] Negotiations were recently under way with the government of that country, however, to settle a small number of Porto Rican farmers in the republic.[6]

In the autumn of 1926 arrangements were made to transport some 1,500 Porto Rican cotton pickers to Arizona, under an agreement between the Arizona Pima Cotton Growers Association and the Insular Bureau of Labor. The first parties consisted of families, and were accompanied by representatives of both the employers' association and the Insular government. Every precaution was taken to carry out the arrangement smoothly. Nevertheless, the results were so unsatisfactory that the sailing of the last of three shiploads arranged for was cancelled, and the experiment seems to have been a failure.[7]

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[3] U. S. Commissioner of Labor, *Report on Hawaii*, 1902, pp. 26-33.

[4] *Ibid.*, 1905, p. 71.

[5] *Décimo Informe Anual del Negociado del Trabajo*, pp. 27-32.

[6] *Ibid.*, also *Twelfth Annual Report* of the Bureau of Labor, p. 33.

[7] *Undécimo Informe Anual del Negociado del Trabajo*, pp. 9-10.

Individual and Family Migration. Meanwhile, Porto Ricans are going to the mainland, especially New York City, in search of employment. Probably the number of such migrants, who include a large proportion of clerical and skilled or semi-skilled workers, is growing. According to an estimate made by the Insular Bureau of Labor, of the 23,543 persons leaving Porto Rico for New York during the fiscal year ending June 30, 1927, only 8,990 remained on the continent.[8] After deducting students and well-to-do Islanders who have transferred their residences to places in the north, this exceeds several fold the volume of any organized movement of labor to definite places of employment that is likely to be undertaken or to be successful if attempted. But up to the present the mainland labor market has not been open to the unskilled Island laborers who are in most urgent need of employment. Various proposals have been made to facilitate an exodus of such labor by subsidizing steamship lines to enable them to carry steerage passengers at low fares and by using Army transports for this purpose.[9]

So far as present experience shows, therefore, the Caribbean countries and the tropical possessions of the United States are not likely to employ a considerable percentage of Porto Rico's surplus laboring population. A larger opportunity for these workers exists upon the mainland and the practical value of this opportunity for the people who need it most will increase in direct proportion as the cost of steerage passage to the continent is lowered. But the ability of Porto Rican workers, especially of the lower economic strata, to better their condition on the mainland will depend largely upon some command of the English language and some previous training in industrial employment. Mass migration of contract labor from Porto Rico has not succeeded in the past and gives no promise of succeeding in the future.

Doubtless, however, the movement of individual workers and their families to the mainland will augment, and will help to elevate their own standard of living and to better the condition of those they leave behind them. Yet even if emigration should expand materially, it promises no adequate outlet for the Island's surplus labor. Probably no case is on record where emigration has permanently lessened excessive population pressure in any part of the world. Nevertheless, as the example of such countries as Italy testifies, emigrants often contribute to the support of the people they leave at home and otherwise improve conditions in the land of their birth.

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[8] *Twelfth Annual Report* of the Bureau of Labor, pp. 32-33.

[9] *Undécimo Informe Anual del Negociado del Trabajo*, p. 13.

II. MORE EFFECTIVE UTILIZATION OF PHYSICAL RESOURCES

No agrarian remedy suggests itself as likely to solve Porto Rico's difficulties. Here, as in the case of emigration, measures in a degree beneficial fail from quantitative inadequacy. It would require the transfer of 50,000 people annually to other countries for a series of years and a permanent outflow of 25,000 annually thereafter to reduce the population to a point where all who remained at home could find steady and remunerative employment. Similarly, an increase of agricultural production far beyond anything the resources of the Island make possible would be needed in order to raise the economic standards of even a stationary population to anything approaching the mainland level. The work that the Insular Department of Agriculture and Labor is now doing to increase production is of importance, but it can in no sense be a cure, because there is not enough good idle land in the Island to employ more than a fraction of the idle people.

For the same reason changes in the system of tenure, which are often suggested, would afford little relief and possibly would prove *per se* undesirable. Such suggestions usually contemplate parcelling out the land in small holdings. But it must be remembered that if the 600,000 acres which are now under cultivation were divided equally among the people, each family of five or six persons would have little more than two acres. Whether on holdings of this size a type of agricultural economy could be developed which would produce in terms of subsistence as much as the people are now able to purchase with the proceeds of their labor employed in commercial types of agriculture, is extremely doubtful. Under a system of peasant proprietorship, the worker would not only lose the commercial, financial, and other organization advantages which management now effects for him, but would also be deprived of skilled direction in the technical operations of agriculture. It is questionable, also, whether this tropical people would as independent farmers apply their efforts with as great a degree of energy as they do when working for wages. Porto Rico's development has already gone so far as to make it impracticable to consider the relative advantages of peasant versus large-scale farming, or of subsistence versus export agriculture. The fact is that the pattern of agricultural organization and ownership have become pretty thoroughly established; over wide areas of land, capital in large amounts has been invested in more or less permanent plantings, irrigation and drainage works, the erection of mills, and other equipment. The system of land holding, the distribution of property rights, and the general structure of land values, has been based upon this development. It is necessary to recognize these facts in planning any program of constructive development.

At the same time the development of commercial agriculture should not be continued merely because of the momentum already gained. Such a course would involve resorting to lands whose productivity in such enterprises is comparatively low or which require unduly expensive reclamation works; or would undesirably restrict the field open for small enterprise. Every effort should be made to instruct and encourage the small farmer in the utilization of available land for the production of fruits, vegetables, and subsistence crops.

Attention should here be called to the fact that one reason for the incomplete utilization of existing agricultural resources is that many land owners, whether living upon their lands or operating farms, show a preference for town life. Speaking more particularly of the coffee country, the Commissioner of Agriculture and Labor has described a condition which has many of the disadvantages of permanent absenteeism.[10]

> . . . The farmers have ceased long ago to live on the farms. In the municipality of Yauco, a representative coffee section, 28 of the most important coffee growers live in the town. They own 4,959 acres of coffee, which represent 86.1 per cent of the total coffee acreage for the municipality. Out of these 28 growers, 15 live more or less comfortably in the town drawing

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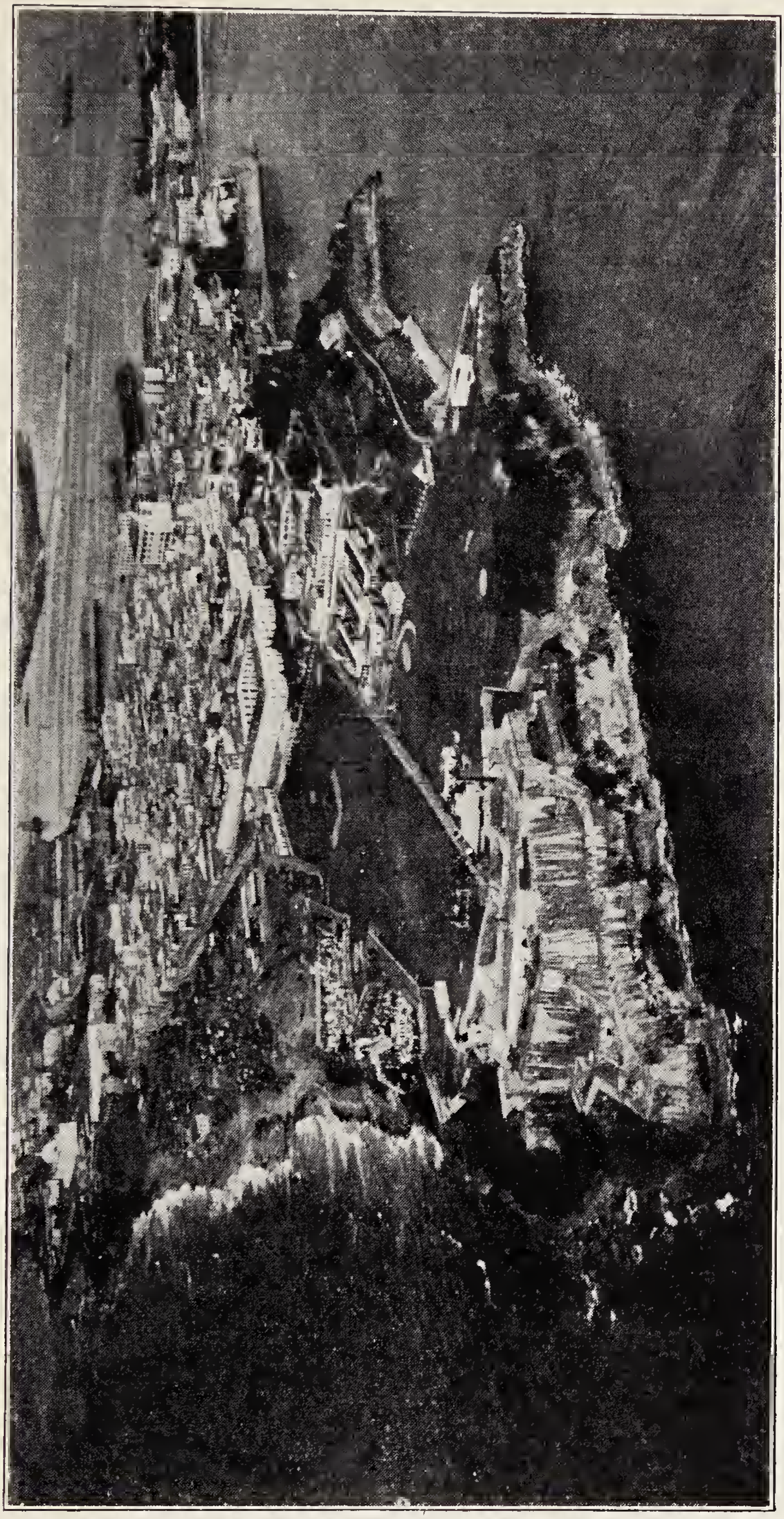
[10] *Annual Report,* 1924-25, pp. 28-29.

their living from the farms but without attending them properly; four are merchants, while the rest are professional men or government employees. Thus our coffee-producing region presents the paradox of an important farming district with no farmers. The partial abandonment of many of the coffee farms has brought about the poorest cultivation and farming practices known in the Island, and today coffee cultivation is a "myth." Under these circumstances of almost complete abandonment of the farms, it is easy to understand the alarming decrease in production.

The natural resources of Porto Rico are not limited to agricultural land. The Island possesses climatic and scenic attractions which should be exploited. This can be done, first, by making Porto Rico a more attractive place of residence for affluent Islanders now living abroad, and, second, by attracting outsiders to the Island. Absenteeism is an old complaint in Porto Rico, and it may be no greater today, relatively to total wealth, than it was under the Spanish régime. Formerly, Porto Ricans went principally to Spain and Paris, and Porto Rico still supports many of its sons and former residents in leisure on the continent of Europe. But since 1898 a new and powerful magnet has drawn Islanders of means northward to spend their incomes in New York and elsewhere on the mainland. Common citizenship, what is rapidly becoming among these classes a common language, growing community of tastes, and above all business connections and opportunities, encourage this movement. So far as these migrants continue to be producers—and the proportion of them who do is probably much larger than among those who retire to Europe—their change of residence may benefit Porto Rico. But it would be better for the Island if those having independent incomes, who do not find useful occupations on the mainland, stayed at home.

Such absenteeism might be lessened by making Porto Rico a pleasanter place of residence. Nature has endowed the Island lavishly with beautiful scenery and a delightful climate, sufficiently diversified by altitude to be attractive the year around. But as a social community Porto Rico suffers from isolation and from the unpleasant accompaniments of the poverty of the masses. All that the Insular government has accomplished in the way of providing schools, roads, water works, and other public utilities adds to the desirability of



The Island of Old San Juan

the Island as a home. But much remains to be done in the way of city planning, developing restricted residential suburbs, and the creation of cultural centers to keep the well-to-do classes from migrating to the mainland.

Some of the Island's milder vices probably retain at home a section of the population that might otherwise seek excitement elsewhere, but it is doubtful if they add as much to the country's income as they cost. A friendly critic writes as follows:[11]

> Porto Ricans are not all poor. Though the rich are few there is a fairly large money-spending class as shown by the prosperity of race-courses, theaters and other amusement places. A San Juan newspaper recently pointed out that on the preceding Sunday the receipts at the races were $40,000, while a boxing bout on the same day drew a $10,000 house, and the chief theater took in $3,000.
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> The patronage of continental Americans in these amusements is relatively small. It is Porto Rican money that is being spent, which makes one wonder if the absentee landlord, who, it is claimed, should spend his money on the Island, would really help Porto Rico any by staying there and wasting his surplus in racing, boxing, cock fighting, as so many of the residents do. I doubt it.

Porto Rico's unproductive lands, which lie as a rule in the most picturesque part of the country, might bring in substantial sums from abroad, contribute considerably to the public revenues, and add to the income of the common people were they occupied by the winter residences of wealthy sojourners from the North and by the permanent homes of well-to-do Islanders who otherwise might reside in the North. Such a population would give employment to additional workers, afford new markets for local produce, set higher standards of living in rural districts, and exercise a desirable cultural influence upon the neighboring community.

Closely allied with this possibility is that of increasing tourist traffic, which might be made a source of larger revenue than at present. This in turn should be tied up with a systematic effort to preserve, beautify, and emphasize as records of America's romantic past the Island's historical buildings and monuments, especially the fortifications of the former walled city of San Juan. In the latter Porto Rico has a unique possession—a monopoly of semi-medieval masonry under the American flag—and monopolies wisely exploited often pay rich revenues. In a word, the Island needs an energetic and adequately financed Historical Monuments Commission and a correspondingly aggressive and well-supported Tourist Bureau with an experienced residential real estate promoter on its staff.

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[11] From a private communication.

III. INDUSTRIAL POSSIBILITIES

If Porto Rico's agricultural resources are not sufficient to employ its entire population and if the latter cannot work in substantial numbers in outside labor markets, only one choice remains—to develop local industries, particularly those using imported materials. In this direction there are possibilities of indefinite expansion. Enough has been accomplished in the way of manufacturing development to indicate that in certain lines Porto Rico already enjoys competitive advantages over other producing areas and is peculiarly favored as against European cheap producing centers in its free access to the great American consuming market. The benefit of such development is not limited wholly to giving employment to Porto Rican workers; it tends to equalize the trade balance; it furnishes a field for the utilization of Porto Rican capital and managerial ability; and it may be a means of stimulating savings among the people of the Island.

New industries in undeveloped countries have almost invariably owed their origin to foreign investments or to government subsidies. We have already seen that in Porto Rico the bulk of the capital invested in sugar, tobacco, public utilities, and industries is now owned on the mainland or in Europe. If the newer forms of manufactures which have been developing in Porto Rico in recent years are to be rapidly expanded with a view to giving employment, it goes without saying that the bulk of the capital they require must also come from abroad—desirable as it may be in the long run that these industries should be acquired and owned by the people in the Island as a result of their own savings.

The problem of foreign capital is not a new one in Porto Rico. Before 1898 Porto Rico was a colony where poor but thrifty and industrious young Spaniards came to make their fortunes. Those who failed have been forgotten, but many succeeded and carried their savings back to Spain or left them invested in the Island at high rates of return.[12] The change in sovereignty in 1898 made little difference in the situation except to magnify the scale of these operations.

The procurement of capital from abroad, especially when it is controlled by great corporations, creates special problems. Hostility and distrust between corporations and the public, which exists even in countries where shareholders and non-shareholders are neighbors, are aggravated when the owners and directors of corporations are non-residents and largely of what are considered alien stock or antecedents. An enlightened and fearless policy in dealing with corporations in a country where they control so large a fraction of the wealth is evidently demanded. Purely punitive and prohibitory methods of regulating them have not succeeded on the mainland and they will not succeed in the Island. As pointed out in Appendix E, the futile 500-acre law applying to agricultural corporations simply makes the intelligent control of such enterprises more difficult. The utmost freedom should be given corporations to become efficient agencies of production, but the corporations should contribute a full share of the wealth they produce to the general welfare.

American Fruit Grower's Home

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[12] Carroll, E. G., *Report*, pp. 143, 145-46.

The contribution of foreign corporations to the general welfare takes two forms, the payment of taxes to the Insular government, and of wages to the workers employed. It is difficult to generalize about the level of taxes that should be contributed by foreign corporations operating in Porto Rico. Undoubtedly absentee owners have received large returns on their investments since the beginning of the American occupation, partly in the shape of pioneer profits, especially in the sugar industry, and partly as a result of the war conjuncture. On the other hand, considerable sums of North American capital invested in fruit growing and other new enterprises have yielded but moderate returns. Moreover, there is a wide difference in the rate of return earned by different corporations operating in the same general field. It is in the light of these circumstances that we recommended in the chapter on Taxation the establishment of a special tax on wealth passing out of the country.

In the interests of new industrial development the existing tax laws should be simplified as suggested in Chapter VII, in order that potential investors, unfamiliar with and perhaps distrustful of conditions in Porto Rico, may know precisely what tax burden they would have to assume. Subsidies for attracting foreign capital and exemption from taxation are of doubtful wisdom, either from the point of view of the government or of the industries themselves.

Mainland corporations have a real responsibility to do everything in their power to stabilize and to increase wages. The failure of an attempt to establish a statutory minimum wage in the needlework industries has already been mentioned. On cane plantations it is a common practice for employers to fix wages each season on the basis of the price of sugar and other conditions in the industry. Radical changes in rates are rare, but the surplus of labor makes difficult effective protest against shaving down wages, even in times of very moderate depression. Other agricultural wages are more largely determined by individual bargaining or by local custom—principally the latter. In fact, agricultural laborers in Porto Rico possess little bargaining power because the number seeking jobs is almost invariably greater than the employment available. In order to secure the best employment conditions possible, the legislature has created the Board of Mediation and Conciliation previously mentioned, which intervenes in labor disputes but which, of course, cannot change the basic economic conditions which determine wage levels. In respect to housing, camp sanitation, medical care, and the like, employees of the large corporations are better off, as a rule, than those of small native employers.

Corporations usually try to stabilize dividends by building up reserves in good times to carry them over bad times. In view of the fact that the employees of the large companies operating in Porto Rico work for wages close to the subsistence level and are so largely dependent upon a particular corporation, legislation requiring large employers to establish a wage equalization fund, in order to stabilize the income of laborers as well as stockholders, should be given the most careful consideration. Experience everywhere has indicated that in the long run it is to the interest of the employer to have a contented labor force whose standard of living is surely, if perchance but slowly, rising.

On the other hand, labor in Porto Rico must recognize that wage rates cannot, for the present, be maintained on the same level as upon the mainland. Labor costs of production must be relatively low if Island manufacturers are to compete successfully in the markets of the United States. Even if Porto Rican workers equalled in skill and efficiency those of the mainland, wages could not be equalized until capital charges, managerial economies, and other items affecting production costs were also equalized. Owing to lack of training Island workers, moreover, do not as a rule possess as great skill and efficiency as those of the mainland; and if the industries which give them bread are to survive, their wages, therefore, will necessarily be lower for some time to come than those in continental United States.

This does not mean, however, that wages may not be higher in the Island and be paid much more regularly than has been the case in the recent past. In this connection it should be borne in mind that experience elsewhere indicates that high wages and efficiency go together, and that in consequence the higher wages commonly carry their own economic justification.

The accumulation of local capital is of vital importance. While an early and rapid expansion of manufactures on the Island must, in the nature of the case, be accomplished mainly by the use of foreign capital, it is of importance that over the years this reliance upon outside financial aid should diminish. Only thus can the Island emancipate itself from its present colonial dependence in economic matters. As was shown in the chapter on "External Trade and Financial Relations," Island payments due outside owners have already become very large, and the general economic position of the country will be strengthened if the new capital required can be in increasing measure accumulated locally. National thrift should, therefore, be systematically encouraged as a patriotic duty.

Public policy should converge upon such measures as adequate facilities for saving and investment, and the cheapest possible credit within the bounds of financial prudence for local manufacturers and promoters of new industries. While mainland manufacturers having branches in the Island obtain credit from continental banks on favorable terms, local borrowers, as we have shown in the chapter on "Banking and Credit Facilities," are handicapped by high interest rates. The hope of helping Porto Ricans to become business masters in their own house depends primarily upon the encouragement of thrift through providing facilities for and inducement to saving and the making available of these funds for local enterprises at relatively low rates.

Expert industrial management should also be increasingly supplied from local talent. As in case of capital the efforts of the people should be consciously centered upon liberating themselves as rapidly as possible from dependence on outsiders for technical and managerial guidance. Porto Ricans have the native capacity for such positions. The art of political administration captured the imagination of the Island's leaders before much thought was given to industrial administration, and in the former field, including public service engineering, they have made great progress. Indeed, one of the most gratifying experiences of a person placed in a position to compare present conditions in Porto Rico with those existing thirty years ago, is to observe the increase of a skilled and public spirited technical personnel in all departments of the government. This is most obvious in the field of engineering, health, and education, but it appears also to extend throughout the public service. Most of its members received at least their preliminary training in Island institutions, though a majority of those occupying posts of professional responsibility hold degrees from university and technical schools on the mainland. Instead of being almost entirely dependent upon imported talent for services requiring special preparation, as it was at the close of the Spanish régime, the Island is already sending men qualified to render such services to other countries. Graduates of the College of Agriculture and Engineering at the University, which has been in existence only 17 years, are working as engineers or agronomists on the mainland, and in Cuba, Santo Domingo, Venezuela, Colombia, and Peru.

Already the Island has a number of young technicians in the older processing industries like sugar and tobacco, who are well qualified according to exacting modern standards. At present, however, young Porto Ricans who have prepared themselves for careers in industry often find no opening for men of their special qualifications at home, and indeed little opportunity to serve a practical apprenticeship without going to the mainland. A few whom fortune has favored with capital or a going business are prospering. This augurs well for what will happen when more locally controlled enterprises have been established. Fellowships, by means of which carefully selected young scholars might in increasing numbers pursue technical training in mainland institutions, particularly along lines of business administration, would prove of great service.

In envisaging the question of industrial development, it should be emphasized that trained producers, in the strictly material sense of the word, are an asset and that every man possessing special preparation who is forced to leave the Island to find employment elsewhere represents a drain upon its resources, just as does the native who deserts his country to spend his money in idleness in New York or Paris, or the waster at home who squanders wealth which should be devoted to promoting productive enterprises to employ his neighbors.

IV. MARKETING FACILITIES

Improved marketing facilities and methods are a primary requirement for the development of both industry and agriculture. Even though capital, organizing ability, skilled labor, and the raw materials of the whole world were available in Porto Rico, the profit from bringing them together might be lost without an intelligent marketing policy. This applies both to agricultural commodities and to manufactures. Scientific marketing demands organized supply, adequate warehousing, cheap financing, low freights, and crop and price information. While these points have been discussed previously, a word remains to be said by way of emphasis regarding the first two of them.

An organized supply means that farmers and manufacturers must be taught to deliver standardized products of a character and quality that command the most remunerative prices at the time when they can be sold at the greatest profit. In case of ignorant cultivators, this necessitates considerable supervision of farm operations by the marketing agency. Standardization presents a special problem in Porto Rico, especially for manufacturers, because the poverty of the masses has limited their consumption to the cheapest class of merchandise and prevented their becoming familiar with quality goods. Already, careful processing and grading are practiced in the citrus fruit and to some extent in the coffee industry. Sugar is standardized in the course of manufacture. Tobacco, however, is subject to variations in quality, due not alone to methods of cultivation and processing but also to uncontrollable seasonal and geographical influences. In order to meet this situation laws have been enacted providing for the inspection and grading of tobacco and cigars by Insular officials. The commission established to supervise this work maintains an agency in New York and is authorized to act as selling agent of such tobacco growers as may request it to do so.

In case of manufactures, standardization must be left largely to the producer. But the latter's task might be lightened, and the reputation of Island products raised, were the schools to teach the importance of quality and the profit that workers as well as employers gain from maintaining uniform standards in production. It may even be advisable to reorganize the school curriculum in those parts of the Island where contract needlework is commonly done in homes, so as to teach pupils the rudiments of commercial organization in that industry, the character of the custom it serves, and the urgent need of producing uniform quality goods in order to control and extend markets and to insure the highest possible compensation for workers.

While the Island's warehousing and processing facilities are adequate to handle staple crops, public or private cold storage for local dealers and small shippers is needed at interior points and possibly at a few seaports.

In conclusion, it appears clear that Porto Rico has very real possibilities for industrial expansion along certain lines, some possibilities for increased agricultural production, and that such developments may bring a genuine improvement of economic conditions. This will not, however, be a permanent solution of the problem of low wages and unemployment if the present rate of population increase continues.

The people of Porto Rico, like those of some of the neighboring islands and certain Oriental countries, have bred up to—and indeed beyond—the normal subsistence line. It is useless to blink the fact that as long as this continues permanent economic betterment for the masses is impossible. Education in parental responsibility provides the only remedy. This should be coupled with a reasonable hope that the next generation will have a better chance in life than the present one. The idea of progress and the stimulus to ambition that this affords are not yet prevalent among the common people, and it should be a major objective of education to foster them.

Patriotic Porto Ricans are eager that their Island should advance rapidly along the only path of material progress possible in the modern world; that is, through industrialization and highly organized production. These call for more than additional investments of mainland capital and other external stimulants. The latter may be essential at the moment and should be encouraged by persistent and skilful publicity. Porto Rico is as yet one of the most poorly advertised places of equal opportunity and attractiveness under the American flag. But real progress calls for something subtler and more fundamental than this—the training of the people in a new kind of life. This means mass education and self-discipline focussed upon the ideal of a country where every family has not only a fowl in its pot but also books on its shelf. The practice of thrift in order to achieve economic independence for the Island as well as for the individual is a patriotic duty.

The *jíbaro* should be taught ambition. The fact that his home is miserable and unsanitary is not infrequently because he does not think to employ his too frequent periods of enforced idleness to make it better. A Corsican or a Mallorcan drifts into the country as penniless as any of the natives and in a few years is occupying a cottage with a garden and is surrounded with all the essentials of simple, rustic comfort. A boy from a *jíbaro* home finds himself more or less casually upon the mainland or in Hawaii and immediately applies himself to raising his standard of living to a level with that of his neighbors.

FRUIT PACKING HOUSE

So there are hopeful elements in the situation. Porto Rican boys and girls are intelligent and not afraid to work. The number who have supported themselves by their own labor at mainland institutions of learning, the splendid example of the students at the San Germán Polytechnic School, where boys even do the traditional prisoners' work of breaking stone when that is required for new buildings and roads, and the fact that three-fourths of the students entering the University support themselves at least in part, prove that the spirit of young Porto Rico is sound. These boys and girls take up most varied occupations, from library assistants, telephone operators, and musicians, to night watchmen, cabinet makers, and farm laborers.

The eagerness with which the women of Porto Rico are pressing forward to prepare themselves by systematic study for the responsibilities that the new suffrage law has placed upon them, is added testimony to the prevailing interest in community betterment as well as personal welfare. If this same ambition and spirit of self-help and craving for better things can be communicated to all the people by the precept and example of their leaders, the material progress of the Island will be steadily promoted.

APPENDICES

1930

APPENDIX A

THE PORTO RICAN PEASANT AND HIS HISTORICAL ANTECEDENTS[1]

By

José C. Rosario

I. POPULATION ELEMENTS

Two years after Ponce de Leon established himself in Porto Rico with his 20 companions in 1509, there were in the Island some 200 Spanish male adults.[2] That year the Indians rebelled and killed 80 of the Spaniards who had settled in Aguada under Cristobal de Sotomayor. Numerous Indians were killed as a result, and those who remained loyal or were subjugated, who then numbered some 5,500, were distributed among the Spaniards. A third settlement was established in the East, but the Indian rebels, who had retired to the Luquillo range, came down upon the village at night, burned the houses, and killed the Spaniards and their cattle. Subsequently many of the Indians sailed away to the neighboring islands. Meanwhile negro slaves were being introduced into San Juan, as the Island was then called, and an epidemic of smallpox which came with them carried off about one-third of the inhabitants.[3]

At the time of the discovery of America, negro slaves were numerous in Seville. Don Nicolas de Ovando, upon his arrival at Santo Domingo as Governor, was accompanied by some distinguished companions who brought with them several such slaves as their personal servants. Though Ovando was opposed to the introduction of African slavery in the Island, such pressure was brought to bear upon the *Casa de Contratación* at Seville, which had charge of all commerce with the New World, that permission was granted to introduce negroes in the colonies upon the payment of two ducats, or about seven pesetas, for each one imported.[4]

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[1] This monograph, by the assistant professor of education at the University of Porto Rico, whose previous service as Insular Superintendent of Rural Education and lifelong study of the people among whom he was born makes him our best authority on their condition, duplicates in places material presented in the body of this report. But it is published virtually intact as a well rounded and conclusive review of the whole question of living conditions among the Porto Rican peasantry.

[2] de Córdoba, D. Pedro Tomás, *Memoria sobre todos los Ramos de la Administración de Puerto Rico*, Madrid, *Imprenta de Yenes*. 1838. p. 3.

[3] Brau, D. Salvador, *Colonización de Puerto Rico*, p. 280.

Lorenzo Gorrebod, Barón de la Bressé, one of the Flemish nobles who accompanied Philip V to Spain, obtained permission in 1518 to introduce 4,000 negro slaves into the Antilles.[5]

In 1528, the excessive number of males in Porto Rico caused the king to order that all adult Spaniards of the island should marry under the threat of taking away from them the land and the Indians granted them by the Crown.[6] Meanwhile, many Spaniards had taken as concubines Indian women assigned to them in the distribution of Indian workers by Ponce de Leon.[7]

The result of these population movements may be seen in the census taken by Governor Francisco Manuel de Olando in 1531, who gives us the following figures:[8]

ADULT POPULATION OF PORTO RICO IN 1531

Population	Married to Whites	Married to Indians	Single	Total
Spaniards, male	57	14	298	369
Free Indians mandated.	..	..	...	473
Indian slaves	..	..	...	675
Negro slaves:				
Male, 1,168 Female, 355 }	..	..	...	1,523
Total	..	..	...	3,040

This census includes only the adult population. Furthermore, it is clear that the good Governor did not think much of his women compatriots, because he did not include them in the total number of Spaniards, though 50 of the 57 who appear as married to Spaniards were born in Castile.

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[4] Abbad y Lasierra, Fray Inigo, *Historia de Puerto Rico*, Imprenta Acosta, 1866, p. 354.

[5] Brau, D. Salvador, *Historia de Puerto Rico*, p. 58.

[6] Tapia y Rivera, Alejandro, *Biblioteca Histórica de Puerto Rico*, Imprenta de Márquez, 1864, pp. 115-19.

[7] Brau, *Colonización de Puerto Rico*, p. 340.

[8] Brau, *Historia de Puerto Rico*, pp. 70-71.

The census shows several characteristics worth noting:

1. The intermingling of Spaniards and Indians from the very beginning
2. The small number of Indians remaining on the Island
3. The small number of whites as compared with Indians and negroes.

That the king took notice of the small number of whites as compared with the number of negroes is evident from his order compelling slave traders to bring one free white settler for every five negroes imported. Arrangements were also made to send 50 Spanish peasant families to Porto Rico to help increase the white population.

A short time after the above census was taken, Don Juan de Castellano came to the Island with his wife and children and 75 colonists.[9] Between 1536 and 1553, 1,500 negroes were legally imported into the Island, in addition to those who were smuggled in.[10] The number of negroes was enormously larger than that of the whites, of whom there were only 2,500 in 1590.[11]

To counterbalance this the kings of Spain sought to encourage the coming of Spanish settlers; but their efforts were not successful because of the continuous attacks of the English, the French, and the Caribes of the neighboring islands upon the young colony. As a result the Island was left without the hands necessary to work the land and consequently commerce was at a standstill. The farms in the interior were abandoned and overgrown with thickets.

By 1536 the gold mines had been exhausted, and Charles V authorized a loan of 6,000 pesos, to be paid back in four years, to encourage the planting of sugar cane. By 1570 eleven small sugar factories, which produced 5,000 hundredweight of sugar, had been established. But since all commerce had to be carried on with the Spanish ports of Seville and Cadiz, and frequently a whole year went by without any ships from these ports coming to Porto Rico, by 1602 only eight factories with a production of 150 hundredweight remained. Ginger took the place of sugar cane as a cash crop to a large extent, since it was easily planted and gathered and no capital was needed for its cultivation. By this time the Spaniards had begun to scatter in small settlements along the coast.

To understand the *jíbaro* of today, and his tendency to live as far apart from other people as possible, we must bear in mind that the original settlers had been at war with the Moor for eight centuries, and that during this time they had developed a strong individualism in no way different from the individualism which developed in the British colonies on the mainland during the constant frontier battles with Indians and French. The following quotations will make this clear:

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[9] Abbad y Lasierra, *Historia de Puerto Rico*, p. 125.

[10] *Ibid.*, p. 358.

[11] Brau, *Historia de Puerto Rico*, p. 117.

> The inhabitants of Aguada lived near enough to each other; the rest of the land being used for raising cattle. Then the division of land was decided upon and every one wanted a large share. All who lived on somebody else's land, even though the proprietor gave them the use of a large area without the payment of rent, wanted to have their own independent holdings . . . and as a result the settlers have scattered through a region which is six leagues long and four wide.[12]
>
> A village was founded near the port of Guánica in 1510. Ponce de Leon authorized Don Cristóbal de Sotomayor to settle there with what Spaniards he could bring from Spain. The land was divided among the settlers, who selected their sites at will. They usually chose places as far from each other as possible, undoubtedly with the idea of avoiding quarrels among themselves.[13]

Such was the beginning of our peasant class. It was composed of Spanish individualists who scattered throughout the Island to cultivate their farms, and who when not married to Spanish women mixed freely at first with the Indian women which were mandated to them, and later with negro women slaves. Nevertheless, a great number kept their Spanish blood pure, many examples being noticeable today in both town and country.

The seventeenth century is chiefly remarkable for the frequent attacks of English and French buccaneers upon the Island and for the shortsighted policy of the Spanish government, which prohibited trade with other nations without offering facilities for commerce with the mother country. On the 20th of May, 1662, Don Juan Pérez de Guzmán, an officer of the army, stated that eleven years had gone by without the arrival of a single Spanish merchant vessel, "this being the reason why farmers have no outlet for their crops." [14] The importation of negroes continued, it being recorded that between 1613 and 1620, eleven shiploads of African slaves entered Porto Rico.[15] In brief, the whole seventeenth century was a period of stagnation in every phase of social life.

[12] Tapia y Riveva, *Biblioteca Histórica*, p. 519.

[13] Brau, *Colonización de Puerto Rico*, pp. 121 ff.

[14] Brau, *Historia de Puerto Rico*, p. 144.

[16] Abbad y Lasierra, *Historia de Puerto Rico*, p. 359.

The first half of the eighteenth century shows no further progress. Don Juan José Colomo, who took charge of the government of the Island in 1744, describes the legacy which he inherited from his predecessor in the following words:

> Public scandals without number; robbers at large for lack of punishment; the community a circle of gossipers; minor offices sold to the highest bidders; and soldiers whose only business is to draw their pay; two-thirds of whom are married to mulattas, which explains why there is no need of barracks at present.[16]

In 1760 Don Miguel Uriarte introduced into various ports of Spanish America, including Porto Rico, 15,000 negroes.[17]

The first census of the Island after the one taken by Olando in 1531 was made by Alejandro O'Reilly, who came to the Island on an official mission in 1765. He reported the following classification of the population of Porto Rico in 1765.[18]

Free men	10,968	
Free women	11,497	
Children not over 10	17,381	
Total free population	39,846	
Adult slaves	3,439	
Children	1,598	
Total slaves	5,037	
Total population		44,883

Señor O'Reilly makes no division of races, though from the census taken in 1776, and summarized in the history of Fray Inigo Abbad, we see clearly that there was a great mixture of whites and blacks, the number of mulattoes being larger than the number of whites. The detailed census by municipalities also shows that the southern coast was less populated than the northern coast, and the East less populated than the West. The comparatively small number of slaves indicates that importation of negroes had nearly stopped.

But what is of most interest to the sociologist in tracing the origin of the country population of Porto Rico is the description of the characteristics of the inhabitants given by O'Reilly:

> To make clear the living conditions of the natives, we should state that there are but two schools in the whole island; that outside of Porto Rico (the Capital) and San Germán, very few know how to

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[16] Brau, *Historia de Puerto Rico,* p. 174.

[17] Abbad y Lasierra, *Historia de Puerto Rico,* p. 359.

[18] *Ibid.,* p. 298.

> read; that they count time by governors, hurricanes, visits of the bishop, arrival of fleets, or the receipt of the subsidies from Mexico. They do not understand what a league is. Each one measures distances in proportion to his ability as a walker. Even the most distinguished men, including those of the Capital, go barefoot when they visit the country. The whites do not have any objection to intermarriage with mulattoes. The only permanent inhabitant of the towns, the Capital excepted, is the priest. The others, if they live near, come on Sundays to attend mass and if they reside farther away they come only during the last three days of Easter week. For these occasions they have wooden shacks in town built after the fashion of pigeon houses and mounted on posts. These houses consist of two rooms, and remain open day and night having only the frames but no doors or windows to close. Their furniture is so scanty that they can move in the twinkling of an eye. The houses in the country are built in the same fashion and there is little difference between them and those of the towns.[19]

Fray Inigo Abbad, writing a few years later, paints the following picture of the country people:

> The population of the island is so scattered that we find houses everywhere we go. There is a great abundance of bananas, and fish are plentiful in the rivers and along the coast; there is a great supply of fruits, sweet potatoes, beans, corn, and rice in the hills. Cow's milk is abundant. Household furniture is no obstacle to moving from one place to another, because it usually consists of only a hammock and a kettle. Dishes, spoons, cups, and jars are made out of the *totumo* which is found everywhere. A *machete* is the only instrument used in their work. With it they cut the sticks, vines, and palm leaves to build their houses and also clear the ground and plant and cultivate their crops.

The *jíbaro* has by this time taken shape. He is the product of over three centuries of life in the country, compelled to provide for his own simple needs and to have no others because of the stupidity of a government which prohibited commerce, and living in a land too fertile to call forth his best efforts in order to survive. Such conditions inevitably result in the rapid growth of a population with a low standard of living, which grows and grows until like an enormous wave it threatens the well-being of future generations.

The eighteenth century drew to a close. By 1800 the Island had a population of 155,426 inhabitants, an increase of 271 per cent in 35 years! Such a simple and easy life could have no other result. The more children a man had, the more "hands" there were to plant potatoes, milk the cows, and take a little ginger to the towns to sell. Schools were unnecessary. A man needs little education to water cattle or pick coffee.

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[19] Tapia y Rivera, *Biblioteca Histórica de Puerto Rico*, pp. 518-19.

Roads were not essential. The first pack horse carrying a load of tobacco or beans would trace a path for others to follow. This was the condition of our rural population in 1800.

In 1815 the population of Porto Rico was 220,892—an increase of 43 per cent during the first 15 years of the century. That year a royal decree authorized commerce with the United States and other foreign countries, abolished duties on agricultural implements and slaves, and permitted foreign Catholics with their slaves to settle in the Island. Such immigrants were granted land for cultivation, and given permission to make a will and return to their own country with their capital at the end of a five-year period.[20]

This royal order attracted many foreigners of a high quality, who gave an impetus to the progress of the colony. By the 21st of May, 1816, 324 foreign Catholics and 83 "gentlemen from Louisiana," some of them with slaves and other property, had settled in the Island.

The census of 1834 reports the following population data:[21]

Whites	188,869
Mulattoes	101,275
Free negroes	25,124
Negro slaves	41,818
Troops and prisoners	1,750
Total	358,836

That the island remained eminently rural is indicated by the statistics of dwellings in this census which recorded 5,503 town houses and 34,394 country houses.[22] Since the average number of inhabitants per dwelling was eight, we find that the urban population was about 44,665 while the rural population was approximately 279,171 or 13.7 and 86.3 per cent respectively. These results are obtained, moreover, by counting as urban population even the inhabitants of Morovis, a town which had only six houses.

In 1846 the number of people in the Island had increased by 84,303 and their distribution by race and sex was as shown in the table on the following page.

[20] Brau, *Historia de Puerto Rico,* p. 226.

[21] Abbad y Lasierra, *Historia de Puerto Rico,* p. 301.

[22] de Córdoba, *Memoria sobre todos los Ramos de la Administración de Puerto Rico,* p. 46.

POPULATION OF PORTO RICO IN 1846[a]

Classification	Male	Female	Total
Whites	109,061	107,022	216,083
Free mulattoes	76,728	77,572	154,300
Free negroes	10,360	11,131	21,491
Slave mulattoes	6,366	6,674	13,040
Negro slaves	21,908	16,317	38,225
Total	224,423	218,716	443,139

[a] Abbad y Lasierra, *Historia de Puerto Rico*, p. 302.

Cholera appeared in the Island for the first time on the 10th of November, 1855, and took a heavy toll of the slave population. The effect of this epidemic is recorded in the census of 1860, which gives the following figures:

POPULATION OF PORTO RICO IN 1860[a]

Classification	Male	Female	Total
Whites	154,350	146,060	300,430
Free colored	120,397	120,618	241,015
Colored slaves	21,668	20,068	41,736
Total	296,415	286,466	583,181
Unclassified	....	....	127
Grand total	....	....	583,308

[a] Abbad y Lasierra, *Historia de Puerto Rico*, p. 303.

There were already 1,726 white foreigners and 1,930 colored foreigners in the Island in 1860. By occupations the people were classified as follows:[23]

	White	Colored
Property owners	8,855	4,563
Agricultural laborers	17,395	9,642
Merchants	3,091	321
Factory owners	26	6
Small business men	891	512
Clergy	159	
Miscellaneous employees	874	
Employees out of work and pensioned	49	
Military men including militia	11,133	44
Military men retired	117	12
Teachers	454	15

[23] Abbad y Lasierra, *Historia de Puerto Rico*, p. 305.

From these data we can see that the Island was eminently rural; that business was flourishing; and that the Island had begun to take an interest in education, although the teachers were largely paid by the fees of the pupils.[24]

This was the last general census prior to freeing the slaves. Their number reached a maximum, so far as official records show, in 1846, when 51,216 were registered. It had declined to 31,365 in 1872 upon the eve of their emancipation by the Spanish revolutionary national assembly. The effect of the institution extended, however, beyond the number directly held in bondage. It gave a patriarchal complexion to colonial society and agricultural organization, traces of which still persist. Moreover, nominally free labor, as not infrequently happens when servile labor exists, was assimilated in some degree to the status of its unfree competitors. Under the letter of the law, at least, any freeman who did not own or cultivate as a tenant land enough to support himself and his family was required to be registered and to carry a libreta, or certificate, issued by a local magistrate, containing besides the usual data for identification, the name of his employer and the conditions under which he was employed. Any laborer found without a libreta was subject to arrest and punishment as a vagrant. In a word, for several decades in the middle of the last century, unemployment was nominally an offense against the law. Probably this ordinance did little to lessen idleness among the rural population, which was a cause of common complaint among the propertied classes; but it presumably did restrict in a degree the bargaining power of country laborers, give them a special and inferior status, and encourage a form of peonage.[25]

Spanish immigration increased rapidly in the nineteenth century. The Spaniards came to enter business or to occupy official positions, which were all in their hands. Exploitation of the peasant was their road to wealth. Ignorant *jíbaros* were coaxed to trade in their stores, and after the first crop failure the land either fell into the hands of newcomers or was left in the possession of the owners on tolerance, burdened with mortgages whose interest kept the *jíbaro* in debt for the rest of his life. In the country schools were few and poor; roads were almost impassable; and sanitation and social life were completely absent. The more intelligent peasants left the country for the towns where they might enjoy the advantages of civilization. The rest stayed because they could not get away. Thus developed a *jíbaro* class as badly off in 1900 as in 1765.

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[24] *Ibid.*, pp. 294-306.

[25] Brau, *Las Clases Journaleras de Puerto Rico*, pp. 18-19, 53-64.

By this time the Stars and Stripes had taken the place of the Red and Golden flag of Spain. Was this change to mean anything to our *jíbaro?* Was he to be given his place in the sun? Or would the American Government turn a deaf ear to him as the Spanish government had done? Were men truly created equal, at least equal in political rights before a government which they helped to support by hard, persistent labor from sunrise to sunset, under the scorching rays of a tropical sun? We shall see when we discuss the present status of the rural population.

II. THE QUESTION OF COLOR

Racial statistics in Porto Rico are only approximations to the truth, as the population is extremely intermixed and there are not only two colors, but an infinity of shades. It is next to impossible, in many cases, to determine whether a person is white or slightly colored. In such cases, of which there are thousands, the strictness or tolerance of the census agent determines how the person is to be classed.

The several censuses taken since 1531 show the following figures:[26]

Year		Colored as a Percentage of Total
1531	(including Indians)	87.9
1802		52.0
1812		53.2
1820		55.6
1827		50.3
1830		49.9
1836		47.1
1860		48.5
1877		43.7
1887		40.5
1897		35.7
1899		38.2
1910		34.5
1920		27.0

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[26] These data are compiled from the following sources: for the year 1531, Brau, *History of Porto Rico*, p. 70; for 1802-30, Flinter, Colonel, *Account of the Present State of Porto Rico*, 1833, p. 206; for 1836-1899, *Census of Porto Rico*, 1899, p. 57; for 1910 and 1920, *Census of United States*, 1920, Vol. III, p. 1197.

According to the census of 1910, the number of colored children attending school was 131,079, or 32.4 per cent of all enrolled. The same year the Governor reported that among 121,453 children attending school only 25 per cent were colored. Considering the larger number of children accounted for by the census agents, this discrepancy between the proportions of colored children reported by the two authorities seems to indicate that the teachers classified their pupils less exactly than the Federal enumerators.

The negro population of Porto Rico increased very rapidly during the early years of settlement on account of the importation of negro slaves from Africa, but these soon mixed with the whites and, after the first century, the pure negro type was never in the ascendancy. The number of mulattoes continued to increase, however, and contributed largely to making the colored population a majority. This continued until the second half of the nineteenth century when white immigration and the end of the slave traffic began to shift the ratio between the two races in an opposite direction. The Department of Health in its report for 1925-26, estimates the population of the Island at 1,417,646 of which only 23.2 per cent are colored.

In the censuses of 1910 and 1920, the percentage ratio of colored people to total population in the urban and rural zones was as follows:

Year	Urban	Rural
1910	43	32.3
1920	32.7	25.4

We find a larger number of colored people in the coastal districts than in the interior. This is due to the sugar mills, which were the largest employers of slave labor, having been established on the coast. Later on, when cocoanut plantations were started near the sugar plantations, colored people naturally spread in that direction. In the coast townships, the proportion of the population that is colored ranges from 9.5 per cent (Camuy) to 73.5 per cent (Dorado), San Germán being the median with 31.5 per cent. The interior townships range from 6.1 per cent (Lares) to 51 per cent (Vega Alta), the median being Las Marías with 20.1 per cent.

According to the census of 1920 the population of the total population classed as negro or mulatto was 32.3 per cent in municipalities having more than one-half of their cultivated area in cane, and only 16.7 per cent in municipalities having over one-half of their cultivated area in coffee. Tobacco does not occupy as large a share of the cultivated land in any municipality as do cane and coffee in their respective districts, but in those having more than 35 per cent of their tilled area in that crop the negro and mulatto population formed 18.3 per cent of the total.

III. THE BIRTH RATE

The 44,833 inhabitants found in Porto Rico by O'Reilly, in 1765, multiplied by leaps and bounds in response to the immigration of new stock, the removal of government handicaps, and the monetary help which began to come yearly from Mexico. In 1824 the birth rate in Porto Rico was 56 per thousand. The population had grown from 44,833 to 221,268, an increase of 394 per cent in 59 years! At the later date 39.75 per cent of the population were children from 1 to 9 years of age and 21.09 per cent were between the ages of 10 to 19, the two together making 60.84 per cent of the total number of inhabitants. The rate of increase was indeed terrific, and though somewhat reduced it may be described by the same word today.

The data below show the percentage of the population of Porto Rico included in the different age groups for certain years of the last century and up to 1920.[27]

Age Groups (In completed years)	1824	1827	1832	1899	1920
0-9	39.2	34.5	37.1	30.9	30.4
10-19	21.1	21.5	21.0	22.8	22.6
20-29	17.6	18.9	18.2	18.1	17.3
30-39	9.6	11.1	10.0	11.7	11.9
40-49	5.7	6.5	5.9	7.4	8.6
50-59	3.6	4.0	4.1	5.1	4.9
60 and over	3.2	3.5	3.7	4.0	4.3

These figures show that the number of children has always been excessive. Though the ratio between children and the total population decreased in 1827, probably due to the Santa Ana cyclone of 1825, it went up again in 1832 and has only gradually diminished since then. In 1860 over 56 per cent of the population was between the ages of 1 and 20, which was only about 1 per cent less than in 1832. We also notice a rapid reduction in the figures for ages above 30, which means a larger number of people dying early in their productive career, with the economic loss that this implies.

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[27] Basic data used for this table are from the following sources: for 1824-1832, de Cordoba, T. Pedro, *Memorias de Puerto Rico*, 1833, Vol. 6, pp. 400, 431; for 1899, *Census of Porto Rico*, 1899; and for 1920, *Census of United States*, 1920.

In 1920 Porto Rico had 43.3 children between 6 and 14 for every one hundred people, while the United States had only 31.7. Considering that this is an age of almost total dependence, we have a handicap upon our economic progress which counts heavily indeed among the causes which make us lag behind. Taking the United States as a standard, and it is a very high standard, indeed, we had in 1926, 174,654 children too many. Herein lies one of the principal reasons for the poverty of our people; and here as in most countries the poorest families have the largest number of children. According to the census of 1920, 16.4 per cent of the rural population, the poorest of the Island, consisted of children less than five years old, as compared with only 11 per cent in the urban districts.

IV. HOUSING

A survey of rural housing in three typical districts made by university students reveals the following:

SIZE OF COUNTRY DWELLINGS

Houses Classified	Number of Houses, by Districts		
	Coffee [a]	Tobacco [b]	Sugar [c]
Houses visited	173	148	96
Square feet of floor space:			
40-99	5	9	2
100-199	58	31	28
200-299	75	61	39
300-399	22	21	11
400-499	10	19	8
500 and over	3	7	8
Number of rooms:			
1-3	163	131	86
Over 3	10	11	10
Materials:			
Wood	143	135	85
Galvanized iron	20	...	..
Thatch	10	13	11

[a] Coffee townships: Utuado, Adjuntas, Ciales, Sabana Grande.
[b] Tobacco townships: Cayey, Aibonito, Naranjito.
[c] Sugar townships: Juncos, Loiza, Yabucoa, Maunabo.

The figures show that the average country home in Porto Rico is a wooden house, with about 250 square feet of floor space, consisting of a living room, a bedroom, and a kitchen. Imagine a space about one-third the size of a good-sized school room, enclosed by rough unpainted boards, divided into two rooms of equal size for a bedroom and a living room, with a tiny addition for the kitchen attached to the rear, and you have a picture of the average country dwelling in Porto Rico. These houses are mostly built on posts at an elevation of two or three feet from the ground. Access to the house is facilitated by a wooden step, a short ladder, or a large stone placed before the front door.

That these houses are too small to provide desirable health and moral surroundings is obvious. Since large families are so common in the country districts, it is not unusual for five and six persons to sleep in one of these tiny rooms, the sexes huddled together like so many animals. Better conditions prevail on the larger sugar plantations, where laborers' houses of the later models have a floor space of 336 square feet, with two bedrooms instead of one, as in the majority of the country workers' homes. These houses are painted and present a neat appearance.

The furniture of the average peasant house is of as low a standard as the house itself, and usually consists of rough wooden benches or boxes as furniture in the living room and wooden cots or a board platform instead of beds in the sleeping room. An actual inspection of 346 peasant homes confirms this statement. In the 346 homes studied living room furniture of the kinds indicated below was found:

Chairs	161
Rocking chairs	70
Boxes	281
Hammocks	155
Benches	415

In the same homes the bed room furniture of the kinds indicated was as follows:

Beds and cots	271
Hammocks	139
Board platforms	168
Wooden cots	369

When we consider that upon an average six persons occupy a dwelling, we can easily see to what discomfort our rural population is subjected. These figures indicate that two or more people must sleep on a narrow wooden cot or in a hammock, with the younger members of the families stretched on the bare floor at night. Add to these already unfavorable conditions the fact that about two-thirds of the peasant homes of Porto Rico have no latrine, and you have a fair picture of rural housing.[28] Even these conditions, however, are a great improvement on those prevailing at the time of the American occupation, when only one-fourth of all the houses in the towns and country had any sanitary conveniences whatever.

V. HEALTH

Sanitation, like all other public services, is sadly backward in the rural regions.

> Perhaps no other work has been given so much attention during this year as the extension of the public health work in the rural communities, *which up to the present time has been neglected.* . . .[29]

This is due to the fact that the most influential people live in the towns, and their clamor for attention drowns the voice of their humbler country brethren.

Ninety per cent of the country people of Porto Rico suffer from hookworm.[30] This means that practically all our *jíbaros* are greatly handicapped in their efficiency as workers. People suffering from this disease tire easily, are tortured by frequent headaches, and often have to stop work two or three hours after they begin in the morning.

To start a conversation with a *jíbaro* family about health is like opening a catalogue of diseases. From 346 families studied, including 2,165 people, many of whom showed symptoms of more than one ailment, data were collected on the question of existing or recent illness in the family. The results of this investigation, showing the diseases from which these people had suffered, and the number of persons affected, are given below:

Illness	Number Affected
Colds	523
Hookworm	335
Influenza	235
Headaches	200
Stomach trouble	196
Fever	177
Measles	131
Rheumatism	117

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[28] *Report* Commissioner of Health, 1926, p. 41.
[29] *Report* Governor, 1925, p. 367.
[30] *Ibid.*, p. 382.

Illness *(Cont'd)*	Number Affected *(Cont'd)*
Chicken pox	103
Malaria	87
Typhoid fever	49
Conjunctivitis	18
Kidney trouble	4
Total	2,175

Such data are naturally not exact. They are broadly illustrative, however, and probably do not present an exaggerated picture of the physical ailments or maladies of these people. No cases of tuberculosis were reported. Hookworm was reported only when very noticeable symptoms were visible, consequently only the worst cases are recorded.

Perhaps a clearer idea of health conditions and medical attendance can be obtained from reports of conversations with workers and farm owners themselves.

Case 1.—Laborer—*Barrio* Mameyes—Utuado.

"No physician ever comes here. If a person gets very ill we may take him in a hammock to the doctor in town, and in extreme cases even leave him for a few days in the town hospital."

The town hospital in this case is about 16 miles distant from the *barrio.*

Case 2.—Farmer—Mameyes—Utuado.

"People here have practically no medical attendance. When they get ill they go to the *curanderos,* (i. e. healers) usually women. In the case of expectant mothers, there are women in the *barrio* who give them attendance."

Case 3.—Laborer—Mameyes—Utuado.

"When anybody falls ill, I go to the *curandero,* since the town is too far to go to the doctor."

The peasants accept this situation with a sort of oriental fatalism. "What are we going to do, Señor? The poor have to resign themselves to their fate. Last month my wife fell ill and I had to spend seven dollars in medicines and prescriptions. I paid Dona Isabela *(acurandera)* 25 cents for each prescription and had to buy the medicines besides."

To meet these expenses the man had to sell all his chickens.

Case 4.—Farmer—Mameyes—Utuado.

"Illness is frequent; but I believe it is mostly due to malnutrition. I infer this from the fact that the peons that we keep for errands around the house and who eat our food, are always in perfect health.—No, no doctor ever comes here for the workers. They are treated by *curanderos.*"

Case 5.—Small farmer—Barrio de Alonso—Utuado.

"When anybody falls ill we cure him ourselves or send to the curandero for a prescription."

Case 6.—Coffee laborer—Barrio Guayo—Adjuntas.

"Not long ago, I had four cases of typhoid fever at home and the rest of the children had measles. A friend of mine went to speak to the Mayor about it, and the Mayor asked the doctor to come and see us."

Case 7.—Farmer patient in Hospital of the Fajardo Sugar Factory.

"The hospital is established for the purpose of giving medical attendance to workers. This attendance is free to all laborers. If their families need medical attendance they get it, but for this they have to pay a fee. If they do not have money to pay for the doctor, the factory pays and then makes a small weekly discount from the laborer's wages until the account is settled. There are also some nurses who visit the families and give them advice about health. No charge is made for this service. Similar care is given employees of several other large plantations.

Case 8.—Laborer—La Laura—Yabucoa—Sugar Region.

"When people get sick they are treated by the other members of the family. If they are very sick they are taken to the town doctor in a hammock."

Case 9.—Laborer on a "Colonia" or cane property, near Mayagüez, operated by Guánica Central.

"In case of illness we can go to the factory doctor. The prescription is free; but we have to pay for the medicines which they give us. This we pay at the rate of 50 cents a week."

The municipal government of Ponce employs a number of nurses who live in the country and go from house to house giving advice and helping the families in minor cases.

To ascertain what the *jíbaros* do for their own health in case of illness, a number of students were asked to spend some time in drug stores in various towns of the Island. They were to observe the medicines purchased by the peasants, and then inquire the use they were going to make of them, at the same time asking who had prescribed them. The following is a typical report:

Patent Medicine Purchased	Used For	By Whom Prescribed
Beef, Wine and Iron	Anemia	A friend
Jarabe Leonardi	Malaria	An almanac
Leonardi Elixir	Anemia	A curandero
Wampole Wine	As a tonic	The newspaper
Curatos	Cold	His father
Catarrol	Cold in chest	A curandero
Palatol	Chronic cold	A curandero
Tonicó Wintersmith	Malaria	A newspaper
Bristol Zarzaparrilla	Weakness of the blood	A girl friend
Matisura	For the womb	A midwife
Sanguinol	Anemia	An almanac
Cerebrine Wine	Nervous debility	A curandero

Patent Medicine Purchased *(Cont'd)*	Used For *(Cont'd)*	By Whom Prescribed *(Cont'd)*
Cardui Wine	Painful menstruation	A midwife
Higuerol	Chronic cold	An almanac
Anasma	Asthma	His aunt
Anasma	Asthma	A girl friend
Raíz de Pantano	Kidney trouble	His employer
Matapicor	Itching of the skin	A newspaper

This indicates that our peasants have little or no medical attendance and appeal in case of need to the newspapers, the almanac, or anybody who is willing to prescribe for them. This promiscuous use of patent medicines undoubtedly injures the health of the *jíbaros,* but what are they to do? If we except San Juan and Ponce with 133 and 25 doctors respectively, there are only 183 doctors in all the rest of the Island, or one doctor for each 6,829 people, a great proportion of whom live isolated in remote parts of the country. Towns like Utuado have only two municipal doctors for a population of nearly 40,000, nine-tenths of whom live scattered in the mountains. There is little chance of a *jíbaro's* ever getting trained medical attention of any kind.[31]

VI. ECONOMIC CONDITIONS

Previous to 1815 the economic condition of the Island was one of stagnation. Since trade was legal only with Spanish ports, and very few Spanish vessels visited Porto Rico, the people raised the simple produce they consumed and occasionally exchanged a few head of cattle or a little hardwood timber for cloth and machetes.

A description of the *jíbaros,* written by Flinter about 1833, gives an idea of the economic condition of our peasants at that time. It is interesting as one of the most realistic descriptions we possess of people living under what might be called the tropical peasant economy, that still prevails in many parts of Latin America and the West Indies.

> The *jíbaros,* a name which is applied to those white people who reside in the country, are very civil in their manners. . . . They swing to and fro in their hammocks all day long, smoking cigars and twanging their guitars. The plantain groves which surround their houses, and the coffee trees which grow almost without cultivation, afford them a frugal subsistence. If in addition, they have a cow and a horse, they consider themselves rich and happy. . . . The houses, or rather cabins, of the poor *jíbaros,* are built on posts, which are

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[31] It should be emphasized that this is in spite of the energetic efforts of the Insular health authorities to better this condition, so far as the money at their disposal permits.

> absolutely necessary to preserve them from the humidity of the earth; but they are only raised two or three feet from the ground. In place of boards, the floor is made of the large bamboo, or the palm tree, split like clap boards. These bend beneath the foot, and between the interstices everything below is discernible. The huts are divided into two apartments by a partition of reeds; the room in which the family sit by day and the sleeping room. The father, mother, and children, male and female, of all ages, sleep promiscuously huddled together, on a large platform of boards which is the only bed they generally possess. . . . A few calabash shells and earthen pots, one or two hammocks made of the bark of the palm tree, two or three game cocks, and a machete are all of their movable property. A few coffee trees and plantains, a cow and a horse, an acre of land in corn and sweet potatoes, constitute the property of what would be denominated a comfortable *jíbaro*. This individual mounted on his emaciated horse, dressed in a broad-brimmed straw hat, cotton jacket, clean shirt and checkered pantaloons sallies forth from his cabin to mass, to a cock fight or to a dance, thinking himself the most independent and happy being in existence.

With this sort of people forming 86 per cent of the inhabitants of the Island, the Insular finances were a sad plight, especially after 1810, when the annual subsidies from Mexico stopped.

> Agriculture was in its infancy, commerce was limited to a scanty trade with Spain and a small contraband traffic with neighboring islands belonging to foreign powers. The latter was carried on by smugglers. There were no industries in the island. It was not possible under these circumstances to collect, for government services, more than about one-eighth of the actual expenditures.[32]

The following table illustrates the relatively rapid progress made after the Royal Decree of 1815 went into effect:[33]

Year	Property Assessment	Value of Product (In pesos)
1816	....	2,057,932
1820	....	3,060,040
1824	12,736,719	2,582,337
1827	33,558,648	3,529,663
1832	34,172,609	5,244,063
1833	....	6,702,012

This decree of 1815, already mentioned on page 543, permitted foreigners to settle in the Island, liberated commerce with Spain from the old restrictions, authorized trade with foreign countries subject to a small tax—provided it were carried on in Spanish vessels, and granted the right to trade with the United States and with Europe for one year, and with the remainder of America for six months.[34]

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[32] de Córdoba, *Memoria sobre todos los Ramos de la Administración de Puerto Rico*, p. 81.

[33] *Ibid.*, p. 91.

The exports of Porto Rico, which were valued at only 117,376 pesos in 1765, amounted to 2,590,726 pesos in 1828, and to 4,682,785 pesos in 1834.

Sugar mills sprang up everywhere along the coast, and improved machinery was introduced. Coffee ranked second; cotton third; and tobacco fourth among the Island's staple crops. Stock-raising continued with all vigor, and food products, including fowl, hogs and cattle, were abundant. The Island could indeed be called *Puerto Rico*.

This progress continued for many years. In 1864-65 the Island's assessed valuation was $62,986,991.76 and its production $10,296,179.47.[35]

An old man, whom the author of this monograph visited in one of the coast towns, described life in the country towards the close of this period in the following words:

> Father had a 250 acre farm. He had some *agregados* (tenants), and a few peons also came to work when needed. When the men arrived in the morning they had coffee with milk at my father's house. At noon they were given lunch. If they wanted to stay for dinner they might do so, but whether they remained or not they could take home as many plantains, bananas, yautias, and sweet potatoes as they could carry in a bag. The wage of common laborers was 25 cents per day in cash. They could live in one of the huts built by my father for his workers. These huts were frequently surrounded by a piece of land where the laborer could plant his own garden crops when there was no work to do on the farm. Workers generally had one or more cows and a horse as well as pigs and chickens. Frequently one of them killed a hog, and would send four or five pounds of meat to each of his neighbors, expecting them to do the same when their turn for hog killing came. The cash which the laborer earned was enough to pay for his clothes and other regular requirements; and the animals he raised afforded him extra money for fiestas or extraordinary expenses. Peons worked twelve hours per day, six days in the week. They could have a good time on Sunday, and they usually did, dancing and fighting cocks.

Speaking of 1881, when he came to have a farm of his own, this man said that things had not changed radically at that time. A little later wages went up to 40 and 50 cents, Mexican money, which was then current. But nevertheless owners continued to give their hands one or two meals a day, and enough vegetables to feed their families and their pigs and chickens.

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[34] *Ibid.*, p. 87.

[35] Abbad y Lasierra, *Historia de Puerto Rico*, p. 395.

Before 1898 land in the coastal plain had become too valuable to permit planting part of it in garden crops for the benefit of the workers. So by this time the custom of giving them vegetables and fruit besides their daily wages had ceased in this region, though it still was common in the coffee country. But already at this date there was a superabundance of labor. The small farmer had the same standard of living as the peon. He had to buy on credit from the big store in town. The owner of the store did not collect until the coffee crop was gathered; but the farmer had to pay interest at very high rates. If the crop was good, he might have one or two hundred dollars over to buy clothes for the family, or an extra house, or perhaps another fighting cock which all the neighborhood had coveted. But if the crop was poor, then the account could not be settled and interest soon made it grow to enormous proportions; thereupon years and years of harder labor than ever would be necessary to pay old accounts. The farmer by this time probably had home-made cots instead of a wooden platform on which to sleep, and wore shoes and had a chair or two for the sitting room; but this was all. He lived in the same unpainted wooden shack with its smoky kitchen, and with no sanitary conveniences; and the pigs ran all about the place.

The big farmer, owning 500 acres or more, was a small feudal lord. He had his *agregados* and peons to wait on him at all hours, their small huts surrounding his large mansion. His saint's day and that of his wife were holidays for everyone, with dancing, roast-pig and an abundance of sweetmeats. But beneath the brilliant surface there was always a great deal of poverty. The big farmer did not have work for everybody all the time. There were months of scarcity when people suffered privation. Every countryside had more laborers than were needed to cultivate the farms; and since there was an even greater abundance in the towns it was useless to migrate to the urban centers. A boy 15 to 18 years old could be hired by a farmer for four dollars a month to go to the town on errands, to get water and wood for the house, to milk one or two cows every night and morning, and to fill out the day with odd jobs. In town even less was paid for equivalent work. The best cook in a small town made four dollars a month, and was looked upon by the others as a superior person. An ordinary cook or servant received from one dollar and fifty cents to two dollars a month.

If Porto Rico's population had continued to grow as before 1898 without a corresponding increase in production, there would have been a still greater amount of poverty, disease, and starvation than exists today. Fortunately production did begin to increase at such a rate as to be regarded as a phenomenon in the neighboring islands and republics. When one of our citizens visits a Central American country and begins to quote figures to show the magnitude of our commerce, his listeners generally doubt his veracity. How can a resident of Costa Rica, whose imports and exports total 56 million dollars, or of San Salvador, whose entire external trade totals ten and a half millions, believe that little Porto Rico's imports and exports amount to 196 million dollars annually. The reason for this enormous increase of our commerce has been the introduction of capital from the United States. This capital has been invested in the cultivation of sugar cane, tobacco, and fruit, and in case of these three crops the most up-to-date scientific methods of production have been adopted. Unfortunately, this is not true of coffee and minor crops, where the production per acre is very low. While Colombia averages 810 pounds of coffee to the acre, our average is not much over 200 pounds, and our crops of beans, rice, corn, and potatoes are only about half as large on a given area as in the United States. But taking the Island as a whole we have increased the area cultivated from 477,987 acres in 1899 to 549,887 acres in 1928, and we have greatly increased the production per acre of some of our principal products.

Between 1897 and 1928, the area planted in sugar cane rose from 61,558 acres to 237,746 acres; and simultaneously the quantity of sugar made per acre rose from less than one ton to 3.15 tons. Consequently, notwithstanding our enormous growth in population, the economic condition of the common people is not worse than 30 years ago when our population was only seven-tenths as large as at present. But this condition cannot last long, and unless the population remains at a standstill, Porto Rico is heading straight towards disaster. The first symptoms of this are seen in the futile struggle to lower the death rate, and in the increasing number of children who cannot be admitted to the schools.

The following table tells roughly the story of wages in the rural districts:

DATA INDICATING TREND OF LABORERS' HIRE, 1856-1912 [a]

Year	Region	Daily Cash Wage (Cents)	Number of Meals	Given a Piece of Ground	Hours of Work
1856	Minor crops	25	2	Yes	12
1875	Sugar	50–60	2	Yes	12
1893	Coffee	50–60	1	Yes	12
1898	Coffee	50–60	1	Yes	12
1898	Coffee	50	1	Yes	12
1899	Coffee	30–40	1	Yes	12
1902	Sugar	60–70	None	No	12
1902	Sugar	50–70	None	No	12
1901	Sugar	30c–$1.20	...	...	..
1901	Coffee	30–60	...	...	..
1901	Tobacco	60c–$1.00	...	...	..
1912	Sugar	66	...	...	..
1912	Coffee	40	...	...	..
1912	Tobacco	56	...	...	..
1912	Fruits	60	...	...	..

[a] The information for certain of the years given above was obtained directly from old farmers in certain districts in the Island, as follows: Old farmers in Rio Grande for the years 1856, 1875, 1898 (first set of replies given) 1902; old farmers in Mayagüez, 1893; old farmers in Utuado, 1898 (second set of replies given); old farmers in Utuado, after the cyclone, 1899. For the year 1901 the source is U. S. Department of Labor, *Bulletin No. 34*, May, 1901, p. 400. For the year 1912 the source is *Special Report* of the Bureau of Labor of Porto Rico, Dec. 16, 1912, pp. 31, 33, 35, 37. Range of daily wage rate for men during the busy season.

In this and subsequent references to wages and prices before and after the American occupation no allowance is made for the change from the Spanish silver peso to the American gold dollar following that event. Its effects are impossible to measure, and except during a short period of adjustment in 1899 and 1900 did not matter much in the petty transactions of country laborers.

There was a general increase in wages during the years from 1916 to 1921 due, first, to the rise of the general price level; second, in the skyrocketing sugar prices to unprecedented heights; and third, to the scarcity of labor because many hands were demanded by war activities. In the cane regions, wages rose during the harvest season to $2.00 and $2.50 a day. This reacted on the coffee districts where the picking rate rose 50 per cent above the former scale. After the collapse of 1921 day wages sank to 75 cents and $1.00 in the cane regions and to 60 cents in the coffee country.

Wage figures, like those quoted, do not tell the whole story, however, because after the crops in the tobacco, cane, and coffee regions are harvested only about one-half as many laborers are needed as during the height of the season. Consequently, farmers there give their hands only half a day's work every day or three whole days per week, thus considerably lowering the average man's yearly earnings.

If we multiply daily wages by about 300 working days, and then multiply the results by three-fourths, we shall get a figure representing approximately the annual earnings of a farm laborer. For example, in the coffee country where wages are about 60 cents per day, yearly earnings are probably not over $135 for the average worker; in the cane country not over $168.75; and in the tobacco regions about the same as in the coffee districts. We must also take into consideration that houses are generally provided for workers. Their rental value, about $3.00 per month, should be added to cash wages in making comparison with other occupations.

The following table will give more approximate figures for the real income of rural laborers:

Estimate of Rural Laborer's Present Annual Income

Industry	Money Wages	House Free	Medical Attendance	Ground for Food Crops	Total
Sugar Cane....	$169.00	$36.00	$2.00	....	$207.00
Coffee	135.00	36.00	....	$12.00	183.00
Tobacco	135.00	36.00	....	12.00	183.00
Fruits	169.00	36.00	....	12.00	217.00

Other considerations must be taken into account, however, in the coffee districts. Wives and children work during the picking season and the income of the whole family may reach $2.00 or $3.00 a day. The same may be said of the tobacco regions where, during the harvest season, women are employed sewing the tobacco leaves on the sticks by which they are hung to cure in the tobacco sheds. Women are also employed in the fruit regions to pack fruit for shipping or canning. Though women in the cane country do not have these opportunities, openings for the employment of men are more numerous. Many of these can get better paying positions in the factory, or as carpenters, mechanics, and general helpers. Some of them can secure employment as clerks in the stores, railroad workers, or ox drivers.

In general, therefore, the several types of agriculture offer less unequal opportunities to the laborer than wage rates indicate, and differences in money compensation are at least partly counterbalanced by other advantages.

Another item which must be taken into consideration in determining the real wages is the price level in the different regions. As a general rule prices are highest on the coffee farms which are situated in the mountains where the cost of transportation, often by horse or mule back, is higher than in the level country. Next come prices on the tobacco farms, some of which are situated in the mountainous districts distant from towns and improved highways. Prices are lowest on the fruit and cane farms. We must take into consideration further that laborers on tobacco farms frequently work on shares. The owner of the farm supplies them with land, plow animals, seed, one-half of the fertilizer, and insect poison; and also advances them money to pay for such additional labor as they must employ. The tobacco raised is divided between the owner and the share-worker. This arrangement may yield the worker $200 or $300 extra during the year, or, in the case of complete or partial crop failure, it may leave him the debtor of the owner for that amount, which he must repay slowly out of his daily wages. Some of the smaller farmers in the tobacco regions have bought their farms with money cleared as share-workers.

It is hard to say which class of laborers is the better off. Workers on the coffee farms seem to have the steadiest employment and the greatest security; those on the sugar plantations are as a rule the best housed and enjoy the most social advantages; and the tobacco workers have the best chance of themselves becoming small farmers.

There is a great deal of seasonal employment in Porto Rico, and as a result, considerable mobility of labor. The busy season of the tobacco and cane plantations lasts for about six months, and that of the coffee farms for about three months. Coffee workers go to the sugar and tobacco regions and tobacco workers go to the cane regions after the busy season in their own district is over. Tobacco and cane laborers also go to the coffee regions to work during the picking season. Several obstacles, however, stand in the way of greater mobility. Part of the cane country is affected with malaria, and coffee workers catch the fever very easily. Wages are not high enough to support them away from home and leave any surplus for their families. Laborers from one district frequently fail to find employment in another even if they risk the uncertainties of a move.

During a visit to a sugar cane plantation in Juana Díaz the writer talked with several workers from the coffee country who had come to find employment. They were a sad lot, ragged, dirty, and half starved. They earned $5.50 a week if they were able to work every day. Out of their earnings $2.50 went for board and about $1.00 for other expenses. They were quartered in an old dilapidated house where they could hang their hammocks and sleep. Some of them went home on Saturday evening or on Sunday to take what remained of their week's wages to their families. Others lived farther away and went home every two weeks. Workers who go to the coffee country from the tobacco and cane regions are much better off because they can take their families with them without risk of malaria. Since their women and older children are employed during the coffee-picking season, moreover, they are able to make comparatively high wages.

Is the diet of our country workers satisfactory? To answer this question a number of students were sent to typical country districts to collect data upon this subject. Their reports summarize as follows:

REPRESENTATIVE DIET DATA

	Number of Families
Breakfast:	
Black coffee	242
Coffee with milk	79
Coffee with milk and bread or corn meal	48
	369
Lunch:	
No lunch	5
Corn meal and cod fish	18
Corn meal or rice	106
Bananas and cod fish	37
Corn meal, rice, or vegetables	124
Rice and beans	69
	359
Supper:	
Soup	6
Rice and bread	9
Rice and beans	215
Rice and corn meal	38
Rice and beans and corn meal	37
Rice and vegetables	35
Rice and beans and meat	5
	345

But this does not tell the whole story, because it does not show the amounts eaten. A better idea will be obtained from the purchases made for families at the country stores. Some of these follow:

Case 1. Coffee farm—Utuado—A man, his wife and eight children wages of the man are 60 cents a day when he works all day; 30 cents when he works half a day, which is too often the case.

PURCHASES FOR THE DAY

For lunch:

3 lbs. corn meal	15c
½ pound cod fish	8
Salt	2
	25c

For supper:

2½ lbs. rice	18c
Beans	3
Salt pork	4
Sugar	2
	27c

The remaining eight cents must be saved for Sunday, when he makes nothing. The sugar was for use with the morning coffee. He has a supply of coffee left after having picked coffee on shares some time back. When he works half a day, he buys only the food for lunch, and the family eats only one meal.

Case 2. Coffee farm—Utuado—Man has a family of eleven, and makes 50 cents a day.

PURCHASES

2 lbs. rice	12c
½ lb. beans	6
Sugar	3
Coffee	5
Lard	3
1 lb. corn meal	5
Salt	1
Garlic	1
Codfish	5
Soap	2
Chewing tobacco	2
Miscellaneous	5
Reserves for Sunday	10
	50c

When he works half a day, he buys one-half the above articles.

Case 3. Coffee farm—Ponce—Man has family of eight members—and makes 60 cents a day.

Purchases

2 lbs. corn meal	10c
¼ lb. codfish	4
Salt	1
Coffee	4
Chewing tobacco	2
2 lbs. rice	14
Lard	2
½ lb. beans	5
Garlic	1
Petroleum	2
	45c
Sunday reserve	15
	60c

Only half the goods above are purchased when he works half a day.

Case 4. Sugar cane region—Family of four—Wage, 75 cents.

Purchases for Single Meal

4 lbs. of sweet potatoes	16c
Olive oil	4
Sugar	3
Codfish	4
Coffee	4
	31c

Case 5. Sugar cane region—Family of five—Wages: 75 cents.

Purchases for Single Meal

1 lb. rice	7c
Lard	3
Cigarettes	5
2 lbs. sweet potatoes	12
Coffee	2
	29c

Case 6. Sugar cane region—Family of eight—Wages: 75 cents.

Purchases for Single Meal

2½ lbs. rice	12½c
2 lbs. sugar	12
1 lb. corn meal	4
Flour	2
Chewing tobacco	2
Cigarettes	2
Garlic	1
	35½c

It is evident from the lists of purchases above that the food supplied is not enough, even granting that it may be of the right kind. This will be especially evident when we bear in mind that during from four months to six months laborers can obtain work only half a day and, therefore, the purchases above must be reduced by one-half. As a consequence, an immense majority of the rural population of Porto Rico is living on the verge of starvation.

As to clothing, people are no better off. As will be seen from the lists of purchases above, only food can be bought with their wages, clothes being bought only when absolutely indispensable. For this they must sell the chickens which they have been able to raise in their yards.

Such is the life of our country laborers. They work from eight to eleven hours a day and earn barely a miserable existence.

VII. EDUCATION

In 1881 the Governor of the Island, General Eulogio Despuyols, expressed his disappointment over the fact that some towns had enrolled in their rural schools only four to six per cent of the children of school age and praised four towns which he mentioned as models for the others because they had enrolled 17 per cent, 23 per cent, 34 per cent, and 58 per cent of the rural children. Even an enrollment of 17 per cent of the children of school age in the country was, therefore, thought a matter for commendation. The salaries paid rural teachers also indicate how little importance was attached to the education of peasant children. They were assigned fifteen dollars a month; but since the municipalities frequently did not have ready cash, the teachers received town warrants which had to be discounted at local stores at a loss of from one to five dollars upon each month's salary.

This state of affairs continued until the American occupation in 1898. Conditions then began to improve, though the discrimination between the town and the country still persists. More rural schools have been established; school houses have been built; more efficient teachers and better furniture are provided; but the *jíbaros* suffer under the same relative disadvantage as compared with the town people in respect to school accommodations under the Stars and Stripes as under the flag of Spain.

In the rural districts, education is limited to the first three grades. Country children have attended school by the millions during the past 30 years, but the school has had very little influence on their lives. They have entered school at the average age of eight years, and at eleven they have been sent home, because the school could not offer them further instruction. What could these children do? They went home and worked at the same occupations that their parents had followed before them, and in exactly the same routine way. They were taught a little English, but they forgot it rapidly, because they never had occasion to use it. They never took a Spanish book in their hands, so that what little reading they learned was lost instead of being improved by practice. They grew up exactly the same sort of *jíbaros* that they would have been had they never attended school. The American flag which has meant so much to the town people has meant very little to the peasants.

The following table illustrates the difference between the children of the towns and the *jíbaro* children:

RURAL AND URBAN SCHOOL ENROLLMENTS COMPARED, 1917-23 [a]

Year	Grade	Number of Pupils, Urban	Number of Pupils, Rural	Percentage Urban Remaining in School	Percentage Rural Remaining in School
1917	1	11,169	42,240	100.0	100.0
1918	2	9,467	20,340	84.8	48.2
1919	3	9,610	17,671	86.0	41.8
1920	4	8,573	12,245	76.8	29.0
1921	5	[b]	[b]	[b]	[b]
1922	6	6,496	742	58.2	1.8
1923	7	6,064	179	54.3	.4

[a] Compiled from the annual reports of the Commissioner of Education of Porto Rico.

[b] Data not available.

Of 42,000 children entering the first grade in the rural districts only 179, or 0.4 pr cent, completed the seventh grade; while out of 11,000 town children, 6,000, or 54.3 per cent, reached this grade, and 39 per cent, 29 per cent, and 13 per cent had the opportunity of completing their first, second and third year of high school, respectively.

Conditions have not changed much since 1923. About 75 per cent of the children who are admitted to the rural schools receive three years of instruction, their school day being only half as long as the school day for the town pupils, so that their schooling really amounts to about a year and a half. Porto Rico will find it impossible to advance until these conditions are remedied. While 75 per cent of the inhabitants of a country are buried in ignorance, the country cannot be called progressive, no matter how well educated the remaining 25 per cent may be.

The problem is obviously impossible of solution without a large additional expenditure of public funds. The Island cannot afford to spend more than it does at present. The alternative seems to be instead of offering the *jíbaros* education to a third grade and then sending them home to become routine farmers like their parents, to provide them an elementary school course of six years with intensive instruction in agriculture for two years longer, even if it should be necessary temporarily to curtail the number of pupils admitted to school in order to accomplish this. If at the end of eight years pupils leave school with a good preparation for farming, they will produce more, the country districts will be better off, and the Island will eventually be better able to extend education to all. If students of rural schools can be made good farmers, the Department of Education will achieve one of the principal aims of education: to prepare pupils to do better that which they are going to do anyhow.

VIII. CULTURAL OPPORTUNITIES

With the exception of the large farmers, country people have almost no cultural opportunities, except on the occasion of church ceremonies and in their contacts with priests and ministers of other denominations. They hardly ever read a paper or a book, they have no social clubs of any kind, and except for religious services, which part of them attend occasionally, they have no opportunity even to come together for formal social purposes.

At some of the more progressive sugar centrals, club houses are provided to which men may go, part of the expenses being furnished by the factory and the rest met by a fee of 25 cents weekly by the workers. At Fajardo, for example, this club is in charge of a Y. M. C. A. secretary, a graduate of the Polytechnic Institute of San Germán, and provides the following facilities: athletics; checkers, billiards, and other games; teaching of sewing and embroidery to the women; moving pictures; newspapers; lectures on health, education, and co-operation.

Among the rural laborers of Porto Rico visiting is common. People are fond of calling upon their neighbors on Sundays and holidays. Young men go to the houses where there are girls, and spend the afternoon or evening talking or dancing.

These gatherings are more frequent at certain seasons, especially during the harvesting of the various crops when the country people have a little more money and can afford to buy new clothes.

What do the *jíbaros* ordinarily do in their leisure time? Many of them indulge in anti-cultural rather than cultural amusements. They organize a cock fight, and spend a Sunday afternoon sitting, Indian fashion, around the pit, gesticulating and shouting at the top of their voices to stimulate the cocks to kill their opponents. They "shoot craps" on the road. Sometimes within a short distance of five or six miles, one will find four or five groups of men, dice in hand, gambling away part of their hard-earned and meagre wages. They gather at a neighbor's house or a country store and play lottery in the evenings, also gambling for a few pennies at this monotonous pastime.

But a great majority of the peasants simply do not do anything. They stay at home on Sundays and sit on their benches or lie in their hammocks. Some gather wood for the week or do small jobs around the house. A few read an almanac or a paper or novel borrowed from a neighboring farmer. In a few places a baseball game may be found in progress.

In a word, the average countryman will be found sitting at home or visiting a friend whenever he is not working. The average woman will be found doing her housework on Sundays and holidays, as she does during the week.

Perhaps the greatest cultural opportunities enjoyed by the rural population of Porto Rico are offered by religious organizations. The visits of priests and ministers to the barrios, the Sunday schools and Bible classes, and the religious literature distributed in the country exert a marked influence in raising the cultural and moral standards of the people.

The Catholic Church has always been a potent cultural influence in Porto Rico, but not until the American occupation did the Protestants begin to extend their labors to the rural districts.

In 1925, the Evangelical Union, a co-operative association of the Protestant churches working in Porto Rico, had 151 rural chapels, with a membership of 5,116, besides their urban work, which includes such institutions as the Presbyterian Hospital, the Polytechnic Institute at San Germán, and the Robinson Orphanges. It is encouraging to observe the influence of these chapels where our *jíbaros* have an opportunity to gather and sing hymns, read the Bible and discuss it, and exchange opinions about social problems. In most chapels the congregation meets on Sundays, under the direction of the pastor, and once or twice during the week, in the evenings, to read and discuss the Bible. The aims of the Protestant sects, as expressed by their ministers, show that, though they have one eye fixed on the next world, they have the other on this life. To quote from interviews, a Baptist indicated this purpose to be:

> To change living conditions; to correct vices in individuals and the community; to help the people in home hygiene and home economics.

A representative of the Disciples of Christ declared that among the objects of his society were:

> Co-operation with the public schools in obtaining a good attendance. Where there are no public schools, to establish one, so that the children will not remain illiterate. To teach them to be good citizens. To minister to their bodily needs through medical service.

A Methodist said:

> We have established two orphanages for children. The boys receive instruction in agriculture, music, and manual arts.

The Catholics, also, have not been caught napping. They now have a large number of chapels in the country districts and are doing very efficient work. Their aim is to assist the people socially and economically. There are ten American priests in Caguas, in which district they have nine rural chapels. They hold mass in four barrios every Sunday and Sunday school in the afternoon. Some girls from the country help in the latter work. In the barrio San Salvador alone there are about 500 church members. The Redemptorist Fathers have a large number of very fine schools in urban centers, and they are a great help to the educational work of the Island.

A large number of our peasants are Spiritualists. They hold meetings regularly in some barrios, where they gather in a certain house and sit around the table "in meditation." Then the president opens the sessions and spirits are evoked. These communicate, and the sitters then march in procession to another house. When people are ill, one of the so-called "healing mediums" comes and through certain symbolic signs conjures the spirits to depart and leave the sufferer in peace.

Besides the Spiritualists, a large number of people, though members of the Catholic Church or of a Protestant sect, attend Catholic, Protestant and Spiritualist meetings indiscriminately. They say that these faiths are all good and that they see no reason why they should not enjoy all of them.

Another large group, though belonging to Christian churches, believe in a number of immaterial beings who help them on certain occasions and to whom they pray. They ask these beings for favors of all sorts, from obtaining the love of a girl to protection from an imminent misfortune, or rain for their crops. *Jíbaros* pay from five to twenty cents for a printed slip containing one of these prayers. The following are among the most popular ones according to the information acquired from dealers.

PRAYER TO THE WANDERING JEW

Oh, Wandering Jew, protector of lovers. As you entered in the temple of Jerusalem and put out the lights of the altar there, so enter the heart of X and do not let him sleep or eat or be quiet until he delivers himself to me body and soul. Wandering Jew, do not let him sit on a chair, nor lie on a bed, nor stand in any place. Grant that wherever he may be he may hear my voice and see my image and that his heart may beat for me as constantly as the ringing of a church bell. Wandering Jew, do not let him live with anybody else. Grant that he see only me in his dreams and that his heart be made tender for me and for no other woman.

Pater noster, three times.
Ave Maria, three times.

PRAYER TO THE CHARM STONE

Beautiful Charm Stone, enchanted and mineral; you who went with the Good Samaritan and brought with you good luck and fortune, bring me luck and fortune. You were a charm stone, and a charm stone you will be. I ask you gold for my chest, silver for my home, and copper for the poor; coral to preserve me from envious souls and from all illness; and strength to defeat my enemies.

PRAYER TO SAINT MARTHA

Glorious Saint Martha, you who walked in the woods and found a serpent and tamed it with holy water and tied it with a string; by the virtue which Joseph and Mary granted you, I pray that I may be loved by all, that my enemies may pass by me and see me not, that they may see me and touch me not. Glory be to the Father, Glory be to the Son, Glory to the Holy Ghost. Amen.

Ave Maria, three times.

These prayers and many others found in the *jíbaros'* homes—such as the prayers to the Restless Spirit and to the Just Judge—show a strong tendency toward primitive religion and polytheism and demonstrate that in religious matters as in all cultural respects our *jíbaros* are far behind their brothers in the urban districts.

IX. MARRIAGE AND LEGITIMACY

The marriage rate in Porto Rico was very low before the American occupation. In 1888 it was only 4 per thousand, and in 1898 2.9 per thousand, though we find as far back as 1824 a rate of 7.1 per thousand. It increased steadily from 1898 to 1902. That year the marriage rate per thousand was 14.04. Since 1902 it has fluctuated in sympathy with the World War and with economic prosperity or depression. It was 14.1 in 1924 and 15.5 in 1926. This change has been brought about by the Protestant ministers and Catholic priests, who have, since devoting more attention to their rural charges, exercised their influence to persuade the country people to marry legally instead of consensually. As a result, the Island can compare favorably with the United States, where, in 1926, the marriage rate was 10.2 as compared with 15.5 in Porto Rico.

Illegitimacy is a great social evil. The low percentage of marriage before the American occupation was due to the large number of people in the rural regions who lived together as husband and wife without being married. The total number of people so living in 1899 was 84,241, a little over half as many as those who were married.

RATIO OF MARRIED AND CONSENSUALLY MARRIED TO TOTAL POPULATION
1899, 1910, 1920

Year	Legally Married		Married Consensually	
	Number	Per Cent of Population	Number	Per Cent of Population
1899	158,570	16.6	84,241	8.8
1910 [a]	228,225	20.4	101,186	9.1
1920 [a]	292,463	22.6	101,278	7.8

[a] Includes all married persons over 15 years of age.

Though the percentage of consensually married has steadily declined since the American occupation, the number so married, and of technically illegitimate children born to them, is appalling. In the report of the Commissioner of Health for 1926, we find the number of illegitimate children, as compared to legitimate, to be as high as 47.9 per cent in Santa Isabel, the median for the Island being between Carolina with 18.5 per cent and Río Piedras with 17.9 per cent.

X. POLITICS

Do our *jíbaros* know their political rights and do they make use of these rights? Answers to this question may be found in the results of inquiries made of laborers by students of the University.

Case No. 1—Worker—Coffee—Coffee farm—Utuado. "Workers are getting more independent in their voting, though they are not as well treated by their boss if they belong to the opposite party. We have no means of expressing our wishes to the government. Occasionally the farmers get together to bring the needs of the barrio to the attention of the authorities, but we are never asked our opinion."

Case No. 2—Coffee farmer—Utuado. "The tendency of the workers is to vote in favor of the planter's party if the planter has won their affection, and to vote against him if he has not."

Case No. 3—Small coffee farmer—Caonillas—Utuado. "Workers here vote as they please. We do not interfere with their politics."

Case No. 4—Group of workers—Coffee farm—Guayo—Adjuntas. "Some owners try to influence their laborers, or even to compel them to vote for their party. These workers say that they voted with the Socialistas because things are so bad at present that no change could be for the worse."

Case No. 5—Mayordomo in sugar factory. "Almost all workers here are Socialistas. The factory does not interfere in politics. If we interfered there would not be so many Socialistas. At the factory in X the owner discharged all those who did not become Socialistas and so he was able to carry the election in the district."

Case No. 6—Socialista teacher in sugar cane region. "The sugar central here helped the Alianza. Nevertheless, we carried the district. We are educating the workers to know their rights and to get them through the ballot."

Case No. 7—Storekeeper in tobacco district—Cayey. "Most workers here vote with the planters, partly through gratitude and partly through compulsion."

Case No. 8—Tobacco region—Cidra. "Workers vote as they please here."

Case No. 9—Group of workers—Coffee region—Ponce. "We vote as we please. We will not tolerate any interference with our right to vote."

Case No. 10—Small farmer—Minor crop region—Isabela. "Some landowners insist on their workers voting with them. If they do not, they are put off the farm."

A recapitulation of the results of these student inquiries is here presented:

Reasons for party affiliations:	
Follows the party of the poor	74
The party promises more	20
Likes the party	31
Follows employer or landlord	128
Tradition	92
	345

XI. SUMMARY AND RECOMMENDATIONS

The settlers of Porto Rico, because of the individualistic tendencies of the Spaniards, built their homes on widely scattered farms throughout the country. This tendency, coupled with the prohibition of trade with foreign nations, which was practically equivalent to no trade at all, developed the Porto Rican peasant, a man with a very low standard of living, ignorant and superstitious, possessed of a natural kindness and chivalry inherited from his Middle Age peninsular ancestors.

When towns were established, the brightest colonists settled in them and began to look down on the country people with an air of superiority which was well expressed in the term *jíbaro* by which the peasants came to be called. These town people soon monopolized all advantages and progress for themselves. Social and educational institutions, health protection, church activities, and means of communication came to be infinitely inferior in the country. Thus two civilizations developed in Porto Rico: one which compared favorably with that of Southern Europe, and the other, in the rural districts, lagging far behind.

The *jíbaro*, in spite of his many good qualities, such as generosity, kindness, and honesty, is an inefficient producer and has never had any but the lowest standard of living. He multiplies at a frightful rate. If he cannot have two bananas for lunch, he will eat one or none; if money is not sufficient to buy two dresses for his little girl, one will do; if he cannot have a wooden house, he is willing to live in a grass house; if there are no seats, he will sit on the floor. He is a sick and ignorant man. But he will marry young and have as many children as "God wills to send."

It is evident that as long as the majority of the people of Porto Rico are of this kind, the country cannot be called progressive, no matter how fast the town people may get forward. Water will not rise higher than its source.

The recommendations suggested by the foregoing discussion are here given:

1. We must mobilize thought in favor of the *jíbaro.* We must get the social mind ready to act. With a somewhat autocratic government like that of Porto Rico this is comparatively easy. All social institutions such as the press, the church, the town clubs, labor unions, and the school should co-operate to bring before the people the living conditions of the *jíbaros* and their benighted ignorance, as well as the imperative need of remedying this condition.

2. The next step must be to find some means of limiting the birth rate. While the birth rate in the island is 39 per thousand, as it is at present, all solutions for social problems will fail.

3. Better methods of farming should be taught to our peasants in the coffee and food crop districts. The continental United States and Japan get more than twice as many potatoes or beans from an acre of land as Porto Rico does. Certainly, by studying their methods of agriculture, great improvement can be made here.

4. The system of education in the country must be changed. Rural schools must be made something more than agencies to combat illiteracy. The aim of the rural schools should be to teach the *jíbaros* how to produce more. Agricultural education should be emphasized and children should be kept longer in school, even if the total enrollment temporarily drops.

5. The *jíbaro* must be made a normally healthy individual. Hookworm must be entirely eradicated. Money spent doing this would not be charity, but an investment. If money were borrowed for this purpose, the greater production of rural regions would enable Porto Rico to repay it later without financial sacrifice. Trained nurses should be employed to visit rural homes to counteract the economic waste which is produced by the many "practicantes" who prescribe for our *jíbaros.* In this connection patent medicine legislation is also needed.

6. Public opinion must be awakened to fight consensual marriages, which are the cause of the enormous amount of illegitimacy. Concerted action on the part of Catholic priests, Protestant ministers, and the government authorities such as the clerks of the civil register, judges, police and school teachers would soon reduce this social evil in Porto Rico within bounds. We have heard of a case of a civil register clerk, who, when the mother or father came to register the birth of a

child, explained to them the advantages to be gained by the baby if its parents were married. In many cases he succeeded in getting the parents to marry.

7. Even though the birth rate should rapidly decline, Porto Rico will have a serious problem of over-population. This could be solved by the establishment of more industries. In this respect, the wisest thing would be first to encourage established industries to the utmost. Porto Rico is sadly in need of more capital from outside to create work for the excessive number of laborers in the Island.

8. There is imperative need of teaching the *jíbaros* to co-operate in the selling of their produce. An intensive campaign by the Departments of Agriculture and Education would probably produce good results in this direction.

9. There are still too many places in Porto Rico which are not reached by fairly good roads. This prevents civilizing influences from penetrating to these places. A better system of rural roads would probably pay for itself in increased land values.

10. Once roads are improved, a system of villages should be stimulated. This would be slow work, but by no means impossible. We have talked over the proposition with mountain farmers who were very enthusiastic over the idea. One of them offered to give the necessary land and aqueduct for a village. The advantages of the small village over the present cabin houses scattered through the mountains are overwhelming and would greatly facilitate progress in the rural districts.

APPENDIX B

PLANTATION EMPLOYMENT AND WAGE DATA

In this appendix we bring together the results of a number of studies made for this survey from account books of Porto Rican planters, relative to steadiness of employment, the level of wages, and the rate of annual earnings of agricultural laborers. While the individual samples usually are too small to be conclusive standing alone, they afford an interesting confirmation (on the basis of actual accounting records) of the general estimates of earnings presented elsewhere in the book.

I. Fluctuations in Employment on Selected Sugar, Coffee, and Tobacco Plantations, by Weeks[a]

(Average for 1924, 1925, and 1926)

Week of Year	Number of Days Worked			Weighted Index
	On Sugar Plantations	On Tobacco Plantations	On Coffee Plantations	
1	860.40	306.67	260.94	85.8
2	1,427.92	513.17	340.97	134.6
3	1,565.29	492.67	299.56	137.3
4	1,682.90	453.25	318.09	143.1
5	1,620.83	351.75	442.73	145.1
6	1,488.26	310.17	351.65	127.8
7	1,584.42	308.08	315.63	129.8
8	1,580.02	348.08	310.28	131.2
9	1,438.45	282.58	285.79	117.9
10	1,287.49	187.17	319.40	107.5
11	1,287.49	123.42	321.52	104.1
12	1,280.87	112.25	313.22	102.5
13	1,204.75	102.67	311.31	97.7
14	1,182.35	84.58	283.95	93.1
15	1,227.84	92.00	251.88	93.2
16	1,321.05	83.92	233.49	96.2
17	1,339.36	73.25	219.46	95.4
18	1,467.16	50.42	206.20	99.9
19	1,609.47	56.83	198.95	107.4
20	1,691.35	64.50	172.32	109.9
21	1,722.89	70.00	169.89	111.7
22	1,736.25	48.83	153.90	109.9
23	1,696.67	42.33	157.83	107.8
24	1,720.45	63.08	186.43	112.7
25	1,588.90	70.83	175.58	105.1
26	1,562.99	60.17	236.48	108.3

I. FLUCTUATIONS IN EMPLOYMENT ON SELECTED SUGAR, COFFEE, AND TOBACCO PLANTATIONS, BY WEEKS[a]—(Cont'd)

(Average for 1924, 1925, and 1926)

Week of Year	Number of Days Worked			Weighted Index
	On Sugar Plantations	On Tobacco Plantations	On Coffee Plantations	
27	1,428.80	58.33	186.83	96.7
28	1,356.27	77.50	213.89	96.1
29	1,156.97	71.58	252.51	88.3
30	846.48	70.83	271.25	73.2
31	974.56	94.67	269.71	81.2
32	854.81	120.25	271.41	76.2
33	854.22	136.08	271.83	77.1
34	1,010.02	162.33	297.54	89.2
35	953.99	165.83	309.03	87.4
36	981.85	236.58	303.74	92.2
37	909.64	176.17	263.74	81.6
38	800.64	270.25	351.32	88.3
39	894.48	303.67	335.13	93.8
40	827.08	305.83	384.42	94.6
41	742.89	318.00	357.40	88.3
42	654.08	404.83	450.75	96.3
43	840.82	500.25	391.24	106.4
44	508.72	313.83	290.18	69.6
45	467.23	364.92	389.59	78.7
46	535.34	408.83	394.46	85.2
47	607.70	299.50	329.60	77.6
48	622.77	414.42	339.80	85.6
49	751.78	502.00	268.48	91.2
50	860.17	451.00	312.99	98.1
51	880.42	441.67	213.77	90.0
52	1,086.90	499.92	183.09	101.8

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[a] Data drawn from books of four sugar plantations (under one management), one tobacco, and two coffee plantations. Piece work and contract were converted to equivalent days labor by dividing the amount paid by the typical wage rate. In the case of tobacco and sugar only adult male labor is included. In the case of coffee it was impossible to make this distinction because of the large amount of picking which is done on a piece-work basis, both by men and by women and children. In the case of sugar, work done in the sugar factory is excluded. The weighted index in column 5 was computed by weighting the number of days worked in each industry by the number of laborers reported in the several industries in the census of 1920 and by converting these items into an index with the average for the composite year equal to 100.

II. FLUCTUATIONS IN TOTAL WAGES PAID ON SELECTED SUGAR, COFFEE, AND TOBACCO PLANTATIONS [a]

(Average for 1924, 1925, and 1926)

Week of Year	Sugar	Tobacco		Coffee
		Adult Male Labor	Labor of Women and Children	
1	$694.38	$241.79	$85.62	$116.40
2	1,151.77	402.33	130.98	158.29
3	1,217.02	389.97	106.95	127.09
4	1,317.68	360.30	106.72	133.88
5	1,298.41	279.06	87.23	155.57
6	1,192.63	247.97	86.17	151.70
7	1,292.07	248.01	98.86	131.26
8	1,240.02	276.16	100.06	129.89
9	1,178.76	227.09	38.18	121.99
10	1,076.11	151.77	63.21	131.01
11	1,015.65	100.21	41.19	131.71
12	1,013.55	90.18	46.16	122.89
13	965.04	81.61	36.11	126.92
14	917.67	67.16	29.43	118.61
15	946.03	73.65	29.63	104.42
16	1,003.13	67.18	25.33	95.00
17	1,031.45	58.49	12.26	89.79
18	1,158.43	41.11	1.92	83.29
19	1,250.23	45.41	2.38	78.07
20	1,362.49	52.32	5.79	72.77
21	1,449.75	57.99	5.04	72.34
22	1,392.51	39.51	2.33	64.45
23	1,342.74	34.22	10.91	76.20
24	1,373.57	52.97	10.46	84.13
25	1,274.03	57.54	5.08	76.32
26	1,258.63	48.48	5.81	86.45
27	1,102.47	51.03	4.78	81.26
28	991.01	71.42	5.18	89.33
29	844.44	59.75	6.10	101.89
30	615.98	58.46	1.88	112.84
31	701.91	76.11	7.17	118.50
32	620.23	103.51	9.55	114.46
33	620.78	119.71	7.57	116.10
34	708.94	132.75	13.87	127.58
35	686.39	135.37	16.27	136.05
36	720.41	186.49	21.53	132.16
37	677.33	142.17	16.83	116.89
38	591.35	212.42	35.79	148.56
39	665.75	237.51	34.78	135.87
40	610.21	237.58	53.34	157.95
41	564.03	252.00	67.31	144.50
42	502.99	318.13	105.47	184.95
43	627.77	399.28	135.21	170.34
44	391.13	253.42	93.87	134.58

II. Fluctuations in Total Wages Paid on Selected Sugar, Coffee, and Tobacco Plantations[a]—(Cont'd)

(Average for 1924, 1925, and 1926)

Week of Year	Sugar	Tobacco		Coffee
		Adult Male Labor	Labor of Women and Children	
45	368.87	292.21	115.74	177.35
46	424.15	326.04	127.76	184.17
47	465.85	240.39	98.83	163.78
48	472.95	325.58	132.37	159.65
49	587.47	395.60	179.38	131.09
50	670.46	362.37	162.84	160.45
51	691.52	354.89	157.37	103.95
52	851.62	402.73	165.64	84.25

[a] Includes piece work. In the case of coffee, includes a considerable amount of labor of women and children. Amount of such labor in sugar is negligible.

III. Median Annual Earnings of Laborers Who Were on the Pay Roll of a Selected Sugar Plantation for the Number of Weeks Specified[a]

(July 1, 1926, to June 30, 1927)

Number of Weeks on Pay Roll During the Year	Number of Workers on Pay Roll Given Number of Weeks	Median Total Earnings of Workers Indicated
52	29	$294.75
51	12	267.83
50	17	198.40
49	9	204.20
48	13	200.40
47	9	206.12
46	10	198.98

[a] Includes all workers on the plantation proper and in the *fabrica.*

IV. Average Earnings and Time Worked in Specified Weeks in 1927 by Day Workers on a Coffee, a Fruit, and a Sugar Plantation[a]

Week of Year	Coffee		Fruit		Sugar	
	Average Weekly Earnings	Average Days Worked per Man per Week	Average Weekly Earnings	Average Hours Worked per Man per Week	Average Weekly Earnings	Average Days Worked per Man per Week
First week of:						
February....	$3.95	6.8	$3.71	41	....	...
May.........	2.44	4.3	3.52	39	....	...
August......	2.41	4.1	4.29	41½	$4.53	5.3
November....	2.65	4.6	3.93	41	4.33	5.0

[a] The average numbers of day workers employed on these plantations were as follows: Coffee 11, fruit 40, sugar, 396.

V. Frequency Distribution of Plantation Day Workers According to Wage Rates[a]

A. Coffee, 1920-27
(Wage rates per day)

Year	20c to 40c	40c to 50c	50c to 60c	60c to $1.75	Total
1927	8	8	*15*	14	45
1926	4	2	*37*	11	54
1925	3	2	*42*	1	48
1924	3	6	*38*	..	47
1923	..	*25*	3	1	29
1922	..	*27*	3	..	30
1921	8	*27*	..	1	36
1920	3	2	*24*	8	37

B. Fruit, 1920-27
(Wage rates per hour)

Year	Under 4c	4c to 5c	5c to 6c	6c to 7c	7c to 8c	8c to 9c	9c to 10c	10c to 12½c	12½c to 15c	15c to 30c	30c or Over	Total
1927	1	5	12	5	3	*72*	12	25	4	9	12	160
1926	..	2	21	3	3	*67*	9	17	6	13	18	159
1925	..	..	7	6	8	30	*102*	64	..	5	..	222
1924	4	15	9	2	1	*40*	3	22	1	4	11	112
1923	11	9	5	4	*39*	12	7	9	3	..	6	105
1922	16	12	3	5	*33*	9	4	6	..	..	11	99
1921	1	5	9	1	7	14	9	*84*	13	2	..	145
1920	..	4	8	2	7	6	15	*61*	14	2	..	119

C. Sugar, 1920-27
(Wage rates per day)

Year	10c to 30c	30c to 40c	40c to 50c	50c to 60c	60c to 70c	70c to 80c	80c to 90c	90c to $1.00	$1.00 to $1.25	$1.25 to $1.50	$1.50 to $1.75	$1.75 to $2.00	$2.00 and Over	Total
1926	13	92	70	32	19	*469*	148	25	95	12	7	1	17	1,000
1925	12	26	71	41	87	*448*	254	40	126	16	7	..	11	1,139
1924	27	62	50	27	44	198	*208*	46	121	35	7	..	12	837
1923	16	91	55	46	104	*484*	67	41	111	31	1	..	6	1,053
1922	19	51	66	80	251	*316*	85	18	91	15	6	1	8	1,007
1921	3	5	53	52	98	*222*	69	21	155	91	96	7	10	882
1920	8	13	21	48	86	49	5	13	62	144	*220*	28	117	814

[a] For all years except 1927 no correction has been made for workers whose names appear on the payroll more than once in a single year.

D. Tobacco, 1921-27
(Wage rates per day)

Year	20c to 40c	40c to 50c	50c to 60c	60c to 70c	70c to 80c	80c to 90c	90c to $1.00	$1.00 and Over	Total
1926	21	36	94	10	40	*142*	32	9	384
1925	25	43	112	11	*99*	88	18	14	410
1924	15	39	81	3	*135*	27	4	5	309
1923	30	94	12	73	*117*	10	..	..	336
1922	15	96	7	*157*	85	10	2	1	373
1921	16	50	26	*97*	37	8	12	98	344

APPENDIX C

EXTERNAL TRADE AND FINANCIAL ACCOUNTS

A discussion of Porto Rico's trade and financial relations with continental United States and with foreign countries is presented in Chapter XV. Supplementing the discussion are tables which show in some detail the external trade and service operations of the Island, and the movement of capital across its boundaries in the year ending June 30, 1928, and also a summary statement of the extent and character of external ownership in Porto Rican enterprises, real estate, mortgages, and the like, and of Porto Rican investments in external enterprises and properties of various kinds.

No study of this sort had previously been made for Porto Rico. In the main, therefore, the component data were collected in the Island, with the help of government officials, bankers, shipping men, merchants, and other business men, including persons acquainted at first hand with the trade in lottery tickets and in contraband liquor. They were checked and supplemented by information from government and trade sources in Washington and New York. It is the purpose of this appendix to set these data forth in greater detail than in the chapter, and to explain the sources and methods used in compiling them.

I. THE "INTERNATIONAL" FINANCIAL STATEMENT FOR 1927-28

The three tables presented in the text, pages 414-15 and 417, and given in more detail in this section are the "international" income account, the statement of capital transactions, and the balance sheet of "international" debts and investments. These together constitute the "international" financial statement[1] of a country—in this case, the Island of Porto Rico. It would be desirable to have similar statements for a number of years, but such a study would require much more time than was available for the work.

In the compilation of this statement, every effort was made to harmonize its three component parts. We have considered it necessary that the income account and the statement of capital transactions be brought into balance with each other, and that items in those accounts be consistent with items in the balance sheet. This requirement imposes a severe test of the data included. It has necessitated that every item entering into all three accounts be critically reviewed and checked, and that some revision of estimates be made in the light of such comparisons and cross-checking. The result is that the item of "errors and omissions"—so often used as a balancing item for accounts of this sort—is not included, our contention being that the one compiling the accounts should endeavor to make the adjustments needed to eliminate this item, rather than to leave such adjustments for the reader to make.

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[1] For a general discussion of methods and data used in compiling the international financial statement, see Lewis, Cleona, *The International Accounts.*

The extent and character of Porto Rico's trade and service operations with the United States and with foreign countries are indicated by the table below entitled the "'International' Income Account." This statement shows the amount paid or payable by Porto Ricans for goods imported and for services which they have received from non-residents. It also shows the amount received or receivable by Porto Ricans[2] for goods exported and for services rendered to non-residents.

"INTERNATIONAL" INCOME ACCOUNT, YEAR ENDING JUNE 30, 1928
(Figures are given in thousands)

OPERATIONS RESULTING IN NET INCOME TO PORTO RICO:			
Commodity trade:[a]			
Recorded exports of commodities	$103,535		
Sales of bunker coal and oil	827		
Ship chandlery and ship repairs	50		
		$104,412	
Less:			
Recorded imports of commodities	92,342		
Contraband imports of liquor	1,000	93,342	
			$11,070
Gifts and contributions:			
For educational purposes		95	
Foreign missions and churches		320	
Health		70	
Scientific research		21	
			506
Federal expenditures in Porto Rico			2,712
Advertising			400
Net total from operations listed above			$14,688

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[a] No movement of specie reported for 1928.

[2] For the purposes of this appendix, persons who live all or most of the year in Porto Rico are considered as Porto Ricans.

OPERATIONS RESULTING IN NET OUTGO FROM PORTO RICO:			
Freight payments and marine insurance on imports			$5,980
Commissions:			
Payments		4,290	
Less receipts		100	4,190
Remittances:			
Sent to Porto Ricans living outside the Island		1,232	
Less amounts received from Porto Ricans living abroad and in continental United States		930	302
Tourist trade:			
Outgo by Porto Ricans		582	
Less income from outsiders		472	110
Insurance transactions (exclusive of marine)			1,980
Motion picture royalties			160
Cable and radio charges			247
Lottery tickets			1,000
Interest, dividends, and rents paid to:			
Continental and foreign investors by Porto Rican government	$2,072		
Federal Land Bank and Intermediate Credit Bank	676		
Continental and foreign investors by private persons and corporations	9,400	12,148	
Less amounts received by:			
Insular government on external investments	35		
Private persons and corporations on external investments	1,094	1,129	11,019
Miscellaneous items of outgo			57
Net total for items listed above			$25,045
NET DEFICIENCY for all trade and service operations			$10,357

It will be seen from the statement that in the year ending June 30, 1928, the amounts paid or payable were approximately $10,357,000 in excess of the amounts received or receivable. The items showing the way in which this deficiency was cared for are set forth in the table entitled "Capital Transactions," given below.

CAPITAL TRANSACTIONS, YEAR ENDING JUNE 30, 1928
(All figures are given in thousands)

DEBT AND INVESTMENT OPERATIONS RESULTING IN NET RECEIPTS:		
Decrease in Porto Rican investments in United States and foreign government obligations		$1,000
Decrease in Porto Rican investments in foreign and mainland corporation securities	$1,500	
Less new investments of Porto Rican individuals and corporations in mainland securities	200	1,300

Decrease in direct ownership by Porto Ricans in foreign and mainland enterprises, real estate, and mortgages			500
Decrease in holdings of foreign currency notes		1,679	
Less repurchase of foreign currency		1,323	
			356
Decrease in short term investments in the mainland			100
Decrease in Porto Rican deposits in foreign and mainland banks			1,100
Decrease in commercial credits granted to mainland and foreign firms			1,000
Increase in bank loans and advances from the mainland			2,500
Increase in foreign and mainland holdings of securities issued by:			
Insular government	$2,975		
Municipal governments	885		
Private corporations	100		
		3,960	
Less			
Repurchase of Porto Rican securities held outside the Island	100		
Redemption and sinking fund payments by:			
Insular government	423		
Municipal governments	454		
		977	
			2,983
Increase in foreign and mainland mortgages and liens on Porto Rican property and crops, by:			
Individuals—registered mortgages less cancellations amounted to $175, of which about 5 per cent represented new capital brought in		9	
Banks and corporations—registered mortgages less cancellations amounted to $460, of which about 5 per cent represented new capital brought in		21	
Federal Land Bank of Baltimore		1,158	
Intermediate Credit Bank		344	
			1,532
Increase in external ownership of Porto Rican real estate, by foreign and mainland			
Individuals—registered sales totaled $226, of which perhaps 5 per cent represented new capital		11	
Banks and corporations—registered sales totaled $2,769, of which perhaps 5 per cent represented new capital		139	
			150
Net total from operations listed above			$12,521
DEBT AND INVESTMENT OPERATIONS RESULTING IN NET OUTGO:			
Increase in holdings of United States cash and currency notes		$785	
Less exports of United States cash and currency notes		121	
			$664
Decrease in deposits in Porto Rican banks by outsiders			500
Decrease in commercial debts due to foreigners			1,000
Net total for operations listed above			$2,164
NET EXCESS OF RECEIPTS over outgo, from current capital operations			$10,357

The third and last statement is a "Balance Sheet of External Debts and Investments" presented below. This statement shows that foreign and mainland ownership of Porto Rican enterprises and properties of various kinds totaled approximately $176,294,000 on June 30, 1928; while the ownership of Porto Ricans in enterprises, land, mortgages and other properties outside the Island was estimated at $37,867,000. The amount by which external ownership in the Island exceeded the investments which the Porto Rican people and government had in foreign countries and continental United States was thus approximately $145,927,000, according to these estimates.

BALANCE SHEET OF EXTERNAL DEBTS AND INVESTMENTS, JUNE 30, 1928
(Figures are in thousands)

FOREIGN AND MAINLAND HOLDINGS IN PORTO RICO:		
Government bonds:		
Insular	$25,517	
Municipal	18,377	
		$43,894
Enterprises operating in Porto Rico:		
Ownership represented by stocks and bonds	70,000	
Branch houses of foreign and mainland concerns	5,000	
		75,000
Real estate and mortgages of Porto Rico owned by non-resident individuals		25,000
Mortgages and loans of the		
Federal Land Bank	11,102	
Intermediate Credit Bank	1,598	
		12,700
Deposits with Porto Rican banks, by non-residents		2,000
Loans and advances to Porto Rican corporations and individuals, by foreign and mainland commercial banks		15,000
Short-term securities of Porto Rico, held by non-residents		500
Commercial debts due to non-residents		1,000
Insular government debt to the Federal government		1,200
Total of external "debts"		$176,294
PORTO RICAN INVESTMENTS OUTSIDE THE ISLAND:		
Bonds of foreign and mainland governments		$5,000
Securities of foreign and mainland corporations		3,500
Enterprises, real estate, and mortgages—foreign and mainland		2,500
Cash and currency notes:		
Of foreign governments	$100	
Of the United States government	6,400	
		6,500
External deposits:		
In foreign and mainland banks	7,500	
In Postal Savings System	153	
In United States banks by Insular government	614	
		8,267

Short term investments in the United States	600
Commercial credits established for mainland and foreign firms	4,000
Total external investments of Porto Rico	$30,367
NET TOTAL of obligations to non-residents in excess of investments	$145,927

II. THE INCOME ACCOUNT DATA

The income account given on pages 583-84 divides into two parts: operations resulting in net income, and operations resulting in net outgo. Among income items, the first one presented, and the one which accounts for more than three-fourths of the net income shown for the Island, is the commodity trade. This item breaks into several subdivisions, which will be separately discussed below. Other items of income and outgo are discussed in the order in which they appear in the statement on pages 584-85.

Recorded Exports and Imports of Commodities. These data are based on customs house records, and are reported by the Governor in his annual reports. They show gross imports and exports, no adjustments being made for re-exports. Without doubt, the figures are not as accurate as one might wish to have them. The greatest inaccuracies, however, are probably not in the totals reported here, but in the figures which show the direction of Porto Rican trade; the sources of imports and the destination of exports. Many of the imports that are recorded as coming from the United States are, in fact, foreign goods shipped via New York or other ports of continental United States. Likewise, many of the exports whose recorded destination is the United States, are ultimately shipped to foreign countries. Inaccuracies of this sort, however, are common to the trade statistics of most countries.

Some of the merchandise trade is shipped to and from the Island by parcel post and registered mail. For the more important part of this trade the postal authorities require declarations from the exporter or importer, the total value of the declared articles being included in the recorded trade figures. Items not so included are of relatively little importance, and no effort has been made to estimate their value.

Because of its bearing upon the question of shipping charges, care was taken to ascertain the method used by customs officials in Porto Rico in compiling the value figures used in trade reports. It was found that foreign imports are valued c. i. f.; imports from continental United States are valued f. o. b. New York or other mainland shipping port.[3] The official figures show the value of trade with continental United States and with foreign countries as follows (in thousands of dollars):

Source or Destination	Exports	Imports	Net Exports (+) Net Imports (—)
United States	96,663	79,743	+ 16,920
Foreign countries	6,872	12,599	— 5,727
Total	103,535	92,342	+ 11,193

Neither the Porto Rican trade figures nor the Monthly Summary of Foreign Commerce of the Department of Commerce show any import or export of coin and bullion for the year ending June 30, 1928.

Bunker Coal and Oil Sales. Income from such sales, which are not included in the official trade figures, was estimated at $827,000 for 1928. Data concerning bunker coal sales were obtained from the Porto Rico Coal Company; and those for bunker oil sales were furnished by several oil companies doing business in the Island. It is estimated that 18,000 tons of bunker coal were sold in the fiscal year 1927, and over 19,000 tons in the fiscal year 1928. The figures for bunker oil in the same period are 415,000 and 443,000 barrels, respectively.

Ship Chandlery and Ship Repairs. An estimate of the amount of income received from sales of food, provisions, ship stores, and ship repairs for which no export declaration is made, was obtained from the manager of the principal store selling the materials and supplies. The shipyards furnished an estimate of the amount of repairs made on foreign and mainland vessels in Porto Rico. Total income from these sources was estimated at $50,000 for 1928.

Contraband Imports of Liquor. Estimates of the amount of outgo for imports of contraband liquor were obtained from two different sources. What these sources were cannot be disclosed in this report, but several checks were made as to the quantity and value of contraband liquor imported, and these lead us to believe that our estimate of $1,000,000 for this item is conservative. The liquor is brought in by several syndicates; shipped into Porto Rico from one of the neighboring West Indian Islands. The amount that is imported is surprisingly large when one considers the poverty of the major portion of the population.[4]

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[3] See discussion under "freight and commissions," page 590. This information was secured from the Collector of Customs at San Juan.

Gifts and Contributions. Information concerning gifts and contributions received in Porto Rico was gathered by means of questionnaires sent to all churches, missions, schools, and other institutions in the Island. The data indicate that the amount received from the mainland of the United States is surprisingly small, particularly when one realizes the needs of the Porto Rican people. These data, which cover two years, show that the Porto Rican missions received only $284,000 in the year ending June 30, 1927, and $320,000 in the year ending June 30, 1928. The amounts received for health purposes in the same periods were $75,800, and $70,000, respectively. For education the amounts were $118,600 in 1927, and but $95,000 in 1928, including $50,000 from the Federal government. The amount received for scientific research—all contributed by one foundation—was $19,000 in 1927, and $21,000 in 1928. The total for 1928 was thus $506,000.

The figures given here include only such items as should be included in an "international" financial statement; that is, they include gifts in the form of money (drafts, bills, specie, etc.) and in the form of new merchandise, but exclude gifts in the form of second-hand clothing, such as would not be valued and included in the import figures at the customs house where the goods entered the Island.[5]

Federal Expenditures in Porto Rico. The net amount of money disbursed in Porto Rico by the Federal government in maintaining troops in the Island, in payment of pensions and allowances to World War veterans, and in the operation and maintenance of branches of the several departments of the government amounted to $2,712,000 in the year ending June 30, 1928. This represents the total disbursements of the Federal government, less the amounts deposited to the credit of the United States Treasury by such post offices in the Island as had a surplus. It should be noted here that receipts from customs duties and internal revenue taxes, in excess of expenditures for these services, are turned over to the Insular government, and not to the Federal government. The largest item entering into the total of Federal expenditures in the fiscal year 1928 was $1,317,000 disbursed by the War Department in the maintenance of the Porto Rican Regiment of Infantry. Disbursements by the Veterans' Bureau for pensions and allowances to World War veterans in the Island ranked second, amounting to $678,000.

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[4] These imports come in despite the fact that the Federal government maintains a patrol service at a cost of approximately $120,000 per annum. This service is used almost exclusively for prohibition work, and since June, 1927, has been under the direct supervision of the Prohibition Administrator, who, for this purpose, has been appointed a deputy collector of customs. The patrol equipment consists of four gasoline patrol launches, five automobiles, and one truck.

[5] On this point see Lewis, *The International Accounts*, pp. 63-4.

Advertising. Our investigation of this subject showed that Porto Rican establishments spend practically no money in advertising their products in continental United States or foreign countries. Such advertising as is done for Porto Rican products is paid for by the commission merchants handling them. Our conclusions were verified by a Porto Rican newspaper editor who had made an investigation of the subject; also by the officials of the largest tobacco company in the Island, who stated that their company had discontinued foreign and mainland advertising.

Porto Rico, however, derives an income of approximately $400,000 from mainland and foreign firms advertising in the publications of the Island. About one-half of this sum is for direct advertising by mainland and foreign firms in Porto Rican publications. The rest represents allowances made by outside producers to Porto Rican department stores and other merchandising concerns advertising and selling their product along with other lines of goods.

Freight and Insurance on Imports. Porto Rico has no ships of its own. Therefore whatever is paid by Porto Rico for the carrying of its foreign trade is paid to outsiders. Exports from Porto Rico, as we pointed out on page 000, are recorded in the trade figures at their value f.o.b. Porto Rico. The export values given in the trade figures, therefore, show the total amount received by Porto Rico for the goods themselves and for the services involved in getting those goods on board ship at the port of export. So far as ocean shipping charges on the goods are concerned, these do not affect the "international" income or outgo of Porto Rico at all, for they are paid by those receiving the goods, and are paid to foreign or mainland shipping companies.

Imports to Porto Rico from foreign countries are valued c.i.f. Porto Rico; but imports from continental United States are valued f.o.b. port of export. It will be seen from this that the trade figures showing the value of imports from foreign countries include the cost of ocean carriage, and, therefore, no additional entry should be made for shipping charges and marine insurance which Porto Rico pays on these goods. It will also be seen that the trade figures showing the value of imports from continental United States do not include cost of ocean carriage on the goods, but only the cost of the goods and the cost of putting them on board ship at the port of export. Therefore, an entry should be included in the income account of the Island showing the estimated amount which the Island pays to American ships for carrying goods to the Island from New York, New Orleans, and other continental American ports.

A study of a considerable number of invoices on imports for the years 1927 and 1928 indicates that on the average the amount paid for freight and marine insurance approximates 7.5 per cent of the f.o.b. value of the goods. This estimate was verified to some extent by studies made in the Dominican Republic. Imports from the United States in 1928 were valued at $79,743,000. Calculated at 7.5 per cent of this figure, outgo for freight and insurance amounted to $5,980,000. This is the figure used in the income account on pages 583-84.

Commissions. Banking commissions received by banks in Porto Rico were estimated by the banks at $100,000 in the fiscal year 1928. Commissions paid to foreign and mainland banks by Porto Rican banks were estimated at $1,500,000. Net outgo for banking commissions thus amounted to approximately $1,400,000. Other commissions paid on imports are found to average about 3.5 per cent of the invoice price. Imports from foreign countries are valued c.i.f. in the trade figures, and, therefore, commissions are included in the recorded valuation. Imports from continental United States, however, are valued f.o.b. the American port of export. Commissions represent additional sums paid for the merchandise, and as such sums constitute an invisible import, we have computed this payment as 3.5 per cent of the value of imports from the mainland, or $2,790,000 in the fiscal year 1928. No contra items are included for commissions on exports, since such commissions, if paid, according to the collector of customs at San Juan, are included in the merchandise export price. Total outgo for commissions, according to these estimates, therefore, amounted to approximately $4,190,000 in the year 1928.

Remittances. Remittances received by residents of Porto Rico from friends and relatives outside the Island are estimated at $930,000 for the fiscal year 1928; while remittances from residents of the Island to families living abroad and in continental United States are estimated at $1,232,000.[6] The net outgo for the year under this heading was thus approximately $302,000.

These data were compiled for us by a special committee of the Bankers' Association of Porto Rico, and by the several postmasters of the Island. The data compiled by the committee of bankers show remittances to and from continental United States as distinguished from those to and from foreign countries. Data furnished by the postmasters do not make this division.

The detailed estimate of remittances received in the Island from Porto Ricans outside the Island are given below:

Received through banks, from:		
Continental United States	$175,000	
Foreign countries	60,000	
		$235,000
Postal money orders received		695,000
Total received		$930,000

For remittances sent from the Island to Porto Rican families living abroad, the detailed estimates are as follows:

Sent through banks, to:		
Continental United States	$750,000	
Spain	150,000	
Other foreign countries	100,000	
		$1,000,000
Postal money orders sent		232,000
Total sent from the Island		$1,232,000

Included in the figures given above for remittances, are the estimated amounts sent to Porto Rican students studying in the United States and of American and foreign students studying in Porto Rico. Remittances sent to 537 Porto Rican students studying in continental United States were estimated at $362,000; while remittances to 20 American and foreign students in the Island were estimated at $14,000. Net outgo for this item thus amounted to $348,000. It will be seen that other classes of remittances received by residents of Porto Rico from friends and relatives outside the Island amounted to approximately $916,000; while remittances sent from the Island to families living abroad and in continental United States amounted to $870,000; receipts thus exceeding outgo by $46,000.

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[6] Certain items closely related to these are discussed on page 597, under the heading of "miscellaneous items."

In the figures given above we have included no estimate for the sums carried back to the Island by Porto Ricans who, after a sojourn abroad or in continental United States, return to Porto Rico to live. Such income for the Island is probably offset by the sums taken out by continental Americans and foreigners leaving the Island.

Tourist Trade. The tourist trade is a potential source of wealth for Porto Rico, but thus far has been little developed. In fact, on the basis of our estimates, the amount which Porto Rican residents spent in traveling outside the Island was about $110,000 in excess of the income from the tourist trade in the year 1928.

Income from the tourist trade was estimate as follows: In 1928 there were twelve "world tourist" ships stopping at the Island, none of them for more than one day. With the number of passengers per ship estimated at an average of 400, and expenditures per passenger at $25, the income from this class of tourists would total $120,000. During the winter tourist season, which lasts only about nine weeks, about one hundred continental Americans arrived at the Island each week, their average length of stay being about ten days. With expenditures estimated at $250 each, total income from the winter tourist trade would amount to $225,000. Approximately 1,127 tourists came in from the Dominican Republic, and 683 from the Virgin Islands. The average length of stay for these visitors was three days, and average expenditures per day about $10, making total expenditures for this group about $54,300. For other foreigners visiting the Island, total expenditures were estimated at $73,000. On the basis of these estimates, the total income from all tourists amounted to approximately $472,000 in 1928.

Expenditures of Porto Ricans traveling abroad were estimated as follows: The number of Porto Ricans visiting continental United States, Santo Domingo, and the Virgin Islands, and their expenditures, were set down as equal to the number and expenditures of visitors from those places (disregarding "world tourist" ships). But in addition, Porto Rican travelers paid passage money to continental American and foreign shipping companies at average round trip rates estimated on the average at approximately $240 to New York,

$40 to Santo Domingo, and $20 to the Virgin Islands. The number traveling to Europe was estimated at twenty, and their expenditures at an average of $1,400 each. Total outgo, on the basis of these estimates, would approximate $582,000.

Insurance Transactions. According to the Insular Treasurer's report, insurance written by continental and foreign companies in Porto Rico in the year 1927 exceeded $200,000,000. The premiums paid, including renewal premiums, approximated $3,391,000, while the losses and claims paid in the same period amounted to $812,000. Expenses of the insurance companies for maintaining their offices in Porto Rico probably absorbed about 25 per cent of the net sums received by the insurance companies. On this basis, the outgo of the Island for insurance in 1927 may be estimated at about $1,934,000. Assuming an increase in premiums paid in 1928, we have estimated the figure for 1928 at $1,980,000.

Motion Picture Royalties. Practically all of the large American moving picture distributors have branches or agencies in Porto Rico. All of these offices were visited and a questionnaire left to be filled out. Returns were received from about one-half of the exchanges and agencies, and on the basis of the data they supplied it is estimated that the net excess of royalties and expenses paid to United States and foreign companies approximated $160,000 in the year 1928.

Cable and Radio Charges. We succeeded in obtaining data from only two of the five cable and radio companies operating in Porto Rico. Based on these meager data, our estimate is that, after allowing for the expenses paid in Porto Rico by the several companies, the outgo of the Island for cable and radio charges amounted in 1928 to approximately $247,000.

Lottery Tickets. Although it is against the law to sell lottery tickets in Porto Rico, it was found that the Santo Domingo and Spanish lotteries derive a considerable part of their revenue from sales to Porto Rican residents. Our data show that, on the average, the annual outgo of Porto Rico for this item is approximately one million dollars. This estimate was checked by three residents of Porto Rico, well informed on the subject, and also by a well-informed Dominican.

The Dominican Republic sells approximately 19,000 lottery tickets each week, of which Porto Rican residents purchase about 40 per cent. These tickets sell in Porto Rico for about four dollars—the whole ticket being divided into tenths, which retail at 40 cents each. Of this four dollars per ticket, three dollars are sent or taken to Santo Domingo, the total outgo for the year amounting to about $1,185,000. As a check against this figure we have the following: The Dominican budget for the year 1929 estimates the lottery sales at $2,979,000; and 40 per cent of this sum is $1,192,000. The amount sent to Spain is much less than this, the Spanish tickets being more expensive—$20 each—and, therefore, less attractive to the Porto Rican people. Another deterring element is the method used in selling the Spanish tickets. These are not, as a rule, brought into Porto Rico for sale, but are usually held in Spain. Money for their purchase is sent to an agent in Spain, who advises his Porto Rican customers what numbers their tickets carry. Then, if one of these numbers wins a prize, the proceeds are remitted to its Porto Rican owner. The annual amount sent to Spain for this purpose is estimated at about $100,000; which, added to the amounts sent to Santo Domingo, totals about $1,285,000 annually. Against this must be set the amounts received for prizes, which range from $50 to $12,000 a week. The annual total received as prizes was estimated at $285,000. This amount deducted from the estimated outgo for the purchase of tickets leaves about $1,000,000 as our estimate of the Island's net outgo for lottery tickets.

Interest, Dividends, and Rent. According to our estimates for the year ending June 30, 1928, the people of Porto Rico paid to non-residents approximately $11,019,000 more for interest, dividends, and rents than they received on this account. In the discussion below we shall first set forth sources and methods by which the outgo item was estimated, following that with details concerning the income item.

1. Outgo for interest, dividends, and rent paid to non-residents was estimated at a total of $12,148,000. This estimate is based upon information furnished from government sources, upon information furnished by a committee of Porto Rican bankers, and upon data published in various financial manuals.

Interest reported paid to outsiders by the Insular and municipal government amounted to $2,072,000 in the fiscal year 1928. During the same period the amount which Porto Rican borrowers paid in interest on loans made by the Baltimore Branch of the Federal Land Bank and Intermediate Credit Bank was reported as $676,000.

Payments made to outsiders on other classes of obligations were estimated at $9,400,000. This represents an average rate of 8 per cent on obligations totalling $117,500,000, this total being made up of the classes itemized below (figures given in millions) :[7]

Stocks and bonds of:		
Sugar corporations	$40	
Tobacco corporations	10	
Banks	3.5	
Fruit corporations	2	
Miscellaneous, including public utilities	14.5	
		$70
Branch houses of American and foreign firms operating in Porto Rico:		
Oil companies	$2	
Automobile, insurance and other companies	3	
		5
Real estate and mortgages owned by non-residents		25
Deposits with Porto Rican banks		2
Loans and advances to Porto Rican corporations by foreign and mainland banks		15
Short-term Porto Rican securities held by non-residents		.5
Total		$117.5

At first glance the estimate of an 8 per cent rate paid on the various classes of foreign investments in Porto Rico may seem too high, and probably is well above the general average. For the year in question, however, the evidence which we have seems to indicate that the average was probably not less than 8 per cent. Dividends actually paid by the sugar corporations ranged from 5 per cent in some cases to the very high rate of 40 per cent paid by one company. True, there were some companies in Porto Rico unable to pay any dividends, but in the main these were the smaller and, for the most part, locally owned companies. On the whole, interest and dividends paid to outsiders on the stocks and bonds of sugar corporations probably averaged about 9 per cent. Dividends paid by the banks operating in the Island ranged from 6 per cent to 20 per cent, the average rate paid being approximately 11 per cent. Rates paid by the tobacco and public utility corporations probably average well below 8 per cent.

2. Income from interest, dividends, and rent received by the people of Porto Rico was estimated at a total of $1,129,000. The amount received by the Insular government on govern-

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See also discussion on page 601, under the heading of balance sheet items.

ment deposits in mainland banks was reported by the Insular Treasurer's Office at $35,000. The estimated amounts of interest and dividends on other types of investments are given below, with the dollar items given in thousands:

		Investment	Rate	Interest
Bonds of foreign and mainland governments		$5,000	4.5	$225
Securities of foreign and mainland corporations		3,500	5	175
Enterprises, real estate, and mortgages—foreign and mainland		2,500	7	175
External deposits in:				
Foreign and mainland banks	$7,500			
Postal savings system	153			
		7,653	2.5	191
Short term investments in the United States		600	8	48
Commercial credits established by Porto Rican banks for mainland and foreign firms		4,000	7	280
		$30,753		$1,094

Miscellaneous Items. Under this caption are included the estimated income received in Porto Rico from foreign consular services, and the outgo items representing sums paid non-resident boxers, and other foreign entertainers, and sums expended by Porto Rican residents for foreign newspapers and magazines. The detailed figures making up the total are as follows:

Outgo for:		
Foreign and mainland boxers	$47,000	
Foreign entertainers (artists, etc.)	50,000	
Subscriptions to foreign and mainland newspapers and magazines	10,000	
		$107,000
Less income from the foreign consular services		50,000
Net outgo		$57,000

The figure given above for the amount paid foreign and continental boxers was given us by the Boxing Commission of Porto Rico. In this connection it is interesting to note that professional boxing was not authorized by law until the fiscal year 1928.

The estimate for the amount paid foreign entertainers was based on data supplied by the *Empresario* of the Municipal Theatre of San Juan, and by one of the financial supporters of such enterprises.

The estimated outgo for newspaper and magazine subscriptions was based on figures showing the number of continental Americans and foreigners residing permanently in Porto Rico.

The figure for income from the consular services is a rough estimate. Twenty-five states are represented in Porto Rico, but of this number only six maintain regular consular offices: Colombia, Cuba, Dominican Republic, France, Spain, and Venezuela.

III. DATA FOR THE STATEMENT OF CURRENT CAPITAL TRANSACTIONS

A statement is given on page 584 showing changes that took place in the year 1927-28 in the different classes of investments which outsiders have in Porto Rican enterprises and properties, and also changes in investments which residents of Porto Rico hold in external enterprises. It will be seen that the deficiency in the "international" income account of the Island was balanced through the sale of securities and real estate, and through borrowing operations of various other types.

In this section are given the sources of the data, and methods used in compiling the statement, taking up the items in the order in which they appear on page 584. In large part we are indebted for the data in this section and in the balance sheet to a committee of Porto Rican bankers who, together, worked out estimates for us for a large number of the items.

Decrease in Porto Rican Investments in United States and Foreign Government Obligations. The estimate of $1,000,000 for this item was furnished by the committee of Porto Rican bankers, mentioned above.

Decrease in Porto Rican Investments in Foreign and Mainland Corporation Securities. The estimate of $1,500,000 for this item, and of $200,000 for the offsetting item of "new investments of Porto Rican individuals and corporations in mainland securities," were furnished by the committee of bankers.

Decrease in Direct Ownership by Porto Ricans in Foreign and Mainland Enterprises. The estimate of $500,000 was furnished by the committee of bankers.

Decrease in Holdings of Foreign Currency Notes. The estimate of $1,679,000 for this item, and of $1,323,000 for the offsetting item of "repurchase of foreign currency," were furnished by the committee of bankers.

Decrease in Short-term Investments in the Mainland. The estimate of $100,000 for this item was furnished by the committee of bankers.

Decrease in Porto Rican Deposits in Foreign and Mainland Banks. The estimate of $1,100,000 for this item was furnished by the committee of bankers.

Decrease in Commercial Credits Granted to Mainland and Foreign Firms. The estimate of $1,000,000 was furnished by the committee of bankers.

Increase in Bank Loans and Advances from the Mainland. The estimate of $2,500,000 was furnished by the committee of bankers.

Increase in Foreign and Mainland Holdings of Securities Issued in Porto Rico. The net total of borrowings included under this heading is estimated at $2,983,000. Data for the items entering into this total are from the following sources:

The estimate of $2,975,000 for Insular government bonds sold to outsiders, and of $885,000 for municipal government bonds sold, were furnished by the Insular Treasurer.

Securities of private corporations sold to outsiders were estimated at $100,000 by the committee of bankers; repurchases of Porto Rican securities from outsiders were estimated at $100,000 by the same committee.

Redemption and sinking fund payments by the Insular government were set at $423,000; and by municipal governments at $454,000, by the Insular Treasurer.

Increase in Foreign and Mainland Holdings of Mortgages on Porto Rican Property. The net amount which the people of Porto Rico borrowed by giving mortgages on their land and crops is estimated at $1,532,000. Details with regard to the items entering into this total are given below.

Data were furnished by the registry offices of the Insular government showing foreign and mainland individuals, banks, and corporations that had registered mortgages or mortgage cancellations during the year 1927-28. These data showed that mortgage loans made by individuals exceeded cancellations by about $175,000; while those made by banks and corporations exceeded cancellations by $460,000. It was pointed out, however, that not all mortgages are registered so that the total of mortgage loans made during the year may have been larger than these figures. On the other hand, it should be noted that, in part, the mortgage transactions registered do not actually represent the entry of new capital into Porto Rico. For example, some loans made by foreigners living in Porto Rico and making their living there, undoubtedly were included in the total, but these loans did not represent the entry of new funds into the Island. The figures also included some loans made by banks and corporations with branches operating in Porto Rico, and in so far as these loans represent the reinvestment of earnings made in the Island, they do not account for an entry of new funds. A third class of loans included in the figures is mortgage loans made by corporations whose primary operations are in Porto Rico. New funds obtained by these corporations—regardless of the way in which the funds are to be used—have been accounted for in the item above entitled "Increase in foreign and mainland holdings of securities issued by private corporations"; therefore, none of the mortgage loans made by corporations such as these should be included to show new capital brought into the Island and used for mortgage loans.

On the basis of the considerations discussed above, it was seen that the total excess of mortgages registered during the year over mortgages cancelled could not be used in the statement of capital transactions. It was assumed that roughly 5 per cent of such loans might be included. In determining what percentage should be used here, we were guided in part by a knowledge of conditions in Porto Rico, in part by the fact that the results shown by the capital transactions statement must check with those shown by the income account.[8] If too high a percentage figure were used here, the two accounts could not be brought into balance, while too low a figure would also throw the accounts out of balance.

Increase in Mortgages by the Federal Land Bank and Intermediate Credit Bank. These were reported by the Federal Land Bank at $1,158,000, and by the Intermediate Credit Bank at $344,000. It will be seen that the difference between this total ($1,502,000) and the amount that these banks received in interest ($676,000) represents the new funds brought into the Island for agricultural loans—a net sum of approximately $826,000.

Increase in External Ownership of Porto Rican Real Estate. Like the estimate for mortgage loans in the paragraphs above, this estimate is based upon information furnished by the registry offices of the Insular government. Here, as in the case of mortgage loans, it is clearly apparent that only a small percentage of the totals reported by the registry offices can be taken as representing new capital brought in from outside the Island. What precise percentage figure should be used in the computation is a question on which we have no information. We have, therefore, used this item, together with the mortgage item above, as balancing items for the whole account, arbitrarily choosing to apply a percentage which will serve to balance this account with the income account. It is recognized that this percentage may be too small, or too large, and that these two items are serving in part to balance errors in other items in the two accounts. However, on the basis of the considerations discussed in the paragraphs on mortgage loans, it seems likely that the figures given here are not grossly in error. The figures reported by the registry offices are sales to individuals amounting to $226,000, and sales to banks and corporations amounting to $2,769,000. We have assumed that 5 per cent of such sales represented an inflow of new capital from outside. Based on these figures, we have used and, therefore, have set down an estimate of $11,000 of new capital received from sales to individuals, and $139,000 from banks and corporations.

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[8] See statement on this point, page 583.

Increase in Holdings of United States Cash and Currency. Imports of United States cash and currency were estimated at $785,000, based on reports made to the Assistant Federal Reserve Agent by 15 of the most important banks in the New York Federal Reserve District, and exports were estimated by the committee of Porto Rican bankers at $121,000. Net imports were thus estimated at $664,000.

Decrease in Deposits in Porto Rican Banks. This item was estimated by the committee of bankers at $500,000.

Decrease in Commercial Debts Due to Foreigners. This item was estimated by the committee of bankers at $1,000,000.

IV. THE BALANCE SHEET DATA

A balance sheet of Porto Rico's external debts and investments is given on page 586. The purpose of this statement is to show in some detail the extent to which Porto Rican enterprises of various kinds are owned by outsiders or are indebted to outsiders, and to show also the extent to which Porto Ricans are owners of or lenders to enterprises operating outside the Island. In large part the data set forth in the statement were furnished us by a special committee of Porto Rican bankers, but these have been supplemented and checked by data from other sources. The accountant's practice of setting a definite date to which his balance sheet data pertain cannot, of course, apply to data as rough as these; but where precision is possible, the data are as of June 30, 1928. The sources and methods by which the data were compiled are given below.

Government Bonds. Government bonds owned by outsiders were estimated by the Treasurer of Porto Rico at a total of $43,894,000, of which $25,517,000 were bonds issued by the Insular government, and $18,377,000 were bonds issued by the governments of the municipalities.

Enterprises Operating in Porto Rico. Foreign ownership of enterprises operating in Porto Rico was estimated by the committee of bankers at a total of $75,000,000. This estimate was checked by a study of data given in Poor's and Moody's manuals, and also, in the case of sugar, by data compiled by the Sugar Growers' Association of Porto Rico. Additional information secured in this way, indicated that of the total approximately $70,000,000 was represented by stocks and bonds held by outsiders, and about $5,000,000 was represented by the building and equipment of distributive branch houses of mainland and foreign concerns. It also gave a basis for the rough classification by industries that is given on page 596.

Real Estate and Mortgages Owned by Non-residents. The estimate of $25,000,000 for real estate and mortgages owned by non-residents is based on data furnished by the bankers' committee and by the Insular Attorney General. This figure includes only the value of land and mortgages held by owners who neither reside nor carry on any business operations in the Island. In large part the owners are residents of Spain, France, and continental United States. Land and mortgages owned by corporations operating in Porto Rico are considered part of the assets of these corporations; while external ownership in such corporations is represented by stocks and bonds owned outside the Island, and included under that heading in this balance sheet.

Federal Land Bank and Intermediate Credit Bank Mortgages and Loans. The figure of $11,102,000 for outstanding mortgages and loans of the Federal Land Bank, and $1,598,000 for the Intermediate Credit Bank were furnished by the two institutions concerned. The figures are for June 30, 1928.

Deposits With Porto Rican Banks. The special committee of bankers estimated that at the end of June, 1928, non-residents of the Island had on deposit with Porto Rican banks approximately $2,000,000.

Loans and Advances to Porto Rican Corporations and Individuals by Foreign and Mainland Commercial Banks. The special committee of bankers estimated that at the end of June, 1928, outstanding loans and advances made to Porto Rican corporations and individuals by foreign and mainland commercial banks totaled approximately $15,000,000.

Short-term Securities of Porto Rico, Held by Non-Residents. The special committee of bankers estimated that at the end of June, 1928, the short-term securities held by non-residents approximated $500,000.

Commercial Debts Due to Non-Residents. The special committee of bankers estimated that at the end of June, 1928, the commercial debts which Porto Rican concerns owed to outsiders amounted to approximately $1,000,000.

Insular Government Debt to the Federal Government. This item amounts to $1,200,000, a figure supplied us by the Insular Treasurer.

Bonds of Foreign and Mainland Governments. The total of such bonds belonging to residents of Porto Rico was estimated by the special committee of bankers at $5,000,000.

Securities of Foreign and Mainland Corporations. Porto Rican ownership in such securities was estimated by the special committee of bankers at $3,500,000.

Enterprises, Real Estate, and Mortgages Outside the Island. The value of such properties belonging to residents of Porto Rico was estimated by the special committee of bankers at $2,500,000.

Cash and Currency Notes. The value of Porto Rican holdings of the cash and currency notes of foreign governments was estimated by the committee of bankers at $100,000. Porto Rican holdings of United States government cash and currency notes were estimated at $6,400,000, of which $3,000,000 were in circulation (according to estimates of certain banks), and $3,400,000 were in the vaults of the banks of Porto Rico on June 30, 1928 (according to the consolidated report of banks, as compiled by the bank examiner and published in the Governor's *Report* for 1929).

External Deposits. Sums which residents of Porto Rico had on deposit outside the Island were estimated at a total of $8,267,000. The items entering into this total were as follows: Deposits in foreign and mainland banks were estimated at $7,500,000 by the special committee of bankers. Deposits in the Postal Savings System were reported in the annual report of the Postal Savings System as being $153,000. Deposits of Insular government funds in banks of continental United States were reported by the Insular Treasurer at the figure of $614,000.

Short-term Investments in the United States. These investments, practically all in the form of call loans, were estimated at $600,000. This was based on bank reports published in Moody's Manual showing the financial condition of banks in Porto Rico in 1928.

Commercial Credits Established for Mainland and Foreign Firms. Such credits were estimated by the committee of bankers at $4,000,000.

APPENDIX D

DATA ON EXTERNAL TRADE

In this appendix a number of tables are brought together giving detailed data with reference to the external trade of Porto Rico. Frequent reference to these tables has been made in Chapter XV.

I. YEARLY AVERAGE EXTERNAL TRADE OF PORTO RICO
By Indicated Periods, 1836-1928 [a]

Periods [b]	Value (In millions of dollars)	Per Capita (In dollars) [c]
I. Spanish Régime		
1836-1838	9.0	24
1841-1850 [d]	11.0	25
1851-1860	11.6	21
1861-1870	15.6	25
1871-1880	22.7	31
1881-1890	21.4	28
1891-1900 [e]	22.4	25
II. American Régime		
1901-1910	42.1	40
1911-1920	118.7	98
1921-1928	183.5	133

[a] Sources: 1836 to 1900, *Comercial Porto Rico in 1906*, p. 60; 1901 to 1928, *Annual Report* of the Governors of Porto Rico.

[b] Trade figures are for calendar years during the Spanish régime, and for years ending June 30 during the American regime.

[c] Estimated population for midpoint years are used.

[d] 1842 figures are omitted, and allowance made for omission.

[e] 1898 figures are omitted, and allowance made for omission.

In the table given above, the figures for the earlier years are but rough approximations, owing to fluctuations in the value of the monetary unit, and also to the fact that methods of recording trade data were, in all countries, still in a rudimentary state. Beginning with the late seventies and early eighties the figures improve, though even at the present time they are not, of course, absolutely accurate.

II. COMPOSITION OF THE EXPORT
(All quantity and value

Year ending June 30	Sugar		Molasses		Tobacco: Leaf and Scrap		Cigars		Coffee		Fruit			
											Grapefruit		Pineapples	
	Short Tons	Value	Gallons	Value	Pounds	Value	Number	Value	Pounds	Value	Boxes	Value	Crates	Value
1901	69	$4,716	2,848	$596	4,991	$375	12,000	$306	12,157	$1,678	b	b	b	b
1902	92	5,890	3,080	579	2,053	213	71,000	1,549	26,906	3,196	b	b	b	b
1903	113	7,470	4,278	665	2,174	195	68,000	1,754	35,207	3,971	b	b	b	b
1904	130	8,691	3,500	621	3,105	286	60,000	1,461	34,330	3,903	b	b	b	b
1905	136	11,925	4,612	576	2,514	438	88,000	2,152	16,850	2,141	b	b	b	b
1906	205	14,185	6,016	554	1,444	481	114,000	3,075	28,290	3,481	b	b	......	$28
1907	204	14,771	7,923	597	4,345	1,232	129,000	4,241	38,757	4,693	......	$8	......	65
1908	235	18,691	4,804	267	8,402	1,996	106,000	3,414	35,256	4,305	......	44	......	173
1909	244	18,432	9,108	492	4,539	1,250	142,000	4,384	28,489	3,716	......	76	......	443
1910	284	23,546	9,683	599	4,176	1,258	150,000	4,480	45,210	5,670	......	163	......	555
1911	323	24,479	8,869	554	4,450	1,555	175,000	5,355	33,937	4,993	96	310	......	641
1912	367	31,544	10,937	701	5,457	2,320	170,000	5,087	40,146	6,755	109	525	319	685
1913	383	26,619	11,151	608	8,537	3,188	166,000	5,801	41,774	8,511	216	727	360	1,142
1914	321	20,240	15,798	986	10,470	3,350	162,000	5,597	50,212	8,194	206	752	370	1,246
1915	294	27,279	12,050	661	9,285	3,204	170,000	6,016	51,126	7,083	277	834	552	1,724
1916	425	45,809	18,004	1,212	8,085	3,033	157,000	5,531	32,144	5,049	297	837	532	1,176
1917	489	54,016	20,023	1,415	9,409	3,851	206,000	7,843	39,615	5,892	436	939	......	916
1918	337	41,362	15,584	1,321	17,196	8,982	179,000	7,135	37,619	5,505	549	1,120	......	617
1919	352	48,132	16,019	1,525	17,860	8,421	150,000	6,658	27,898	6,066	417	739	......	459
1920	419	98,924	16,870	1,278	20,508	13,416	227,000	11,614	32,777	9,034	420	1,333	141	479
1921	409	72,441	23,890	1,394	14,668	13,568	152,000	8,104	26,732	5,353	668	2,020	173	574
1922	470	40,820	11,443	500	22,453	9,003	141,000	6,279	23,402	4,317	361	1,102	......	601
1923	355	46,207	13,308	360	19,589	9,462	192,000	6,912	16,822	3,188	461	1,384	237	726
1924	372	47,839	11,067	427	23,409	13,190	175,000	5,460	21,859	4,596	667	2,001	270	812
1925	572	53,262	21,913	1,371	22,958	9,870	197,000	7,105	23,781	6,575	580	1,757	343	1,047
1926	579	48,223	24,209	1,136	24,521	13,945	215,000	7,196	26,330	7,071	810	2,482	507	1,534
1927	575	54,757	20,769	833	30,782	20,587	161,000	4,228	19,354	5,748	692	2,096	597	1,791
1928	606	54,579	20,215	862	29,935	17,075	144,000	3,626	7,838	2,597	892	2,704	549	1,654
1929	471	35,222	21,484	938	27,438	12,886	159,000	3,848	1,279	459	215	530	529	1,727

[a] Compiled from *Annual Reports* of the Governor of Porto Rico and from *official* publications

[b] Shipments included under "Other fruits". [c] Less than $500.

TRADE OF PORTO RICO 1901-29
figures are in thousands)

Fruit					Hides		Raw Cotton		Cotton Manufactures (Value)	Straw and Palm-leaf Mfgs (Value)	Total of Exports Listed		Value of all Exports	Year ending Juen 30
Oranges		Coco-nuts (Value)	All other, Including canned (Value)	Value of all Fruits	Lbs.	Value	Lbs.	Value			Value	Per-centage of all Ex-ports.		
Boxes	Value													
......	$84	$8	$17	$109	690	$82	......	......	$8	$41	$7,911	92.2	$8,584	1901
......	51	13	10	74	759	82	......	c	3	177	11,763	94.6	12,434	1902
......	231	c	62	293	718	89	......	......	11	46	14,494	96.1	15,089	1903
......	353	b	81	434	445	55	127	16	32	78	15,577	95.8	16,266	1904
......	125	b	131	256	698	87	115	33	36	109	17,753	94.9	18,710	1905
......	296	130	49	503	840	116	915	218	22	117	22,752	97.8	23,258	1906
......	469	175	67	784	580	88	111	30	37	193	26,666	98.8	26,996	1907
309	631	207	109	1,164	526	72	223	65	65	152	30,191	98.5	30,644	1908
204	402	204	136	1,261	658	102	200	59	48	81	29,825	98.1	30,391	1909
296	583	219	116	1,636	772	153	120	36	37	113	37,528	98.9	37,960	1910
349	704	258	161	2,074	623	115	139	42	12	109	39,288	98.4	39,918	1911
277	584	309	275	2,378	527	93	226	72	....	148	49,098	98.8	49,705	1912
354	740	353	159	3,121	776	150	209	62	....	218	48,278	98.3	49,104	1913
349	752	452	199	3,401	1,074	211	272	79	....	262	42,320	98.2	43,103	1914
200	378	410	95	3,441	1,129	226	312	86	....	331	48,327	97.9	49,357	1915
404	791	413	138	3,355	1,465	303	353	96	....	560	64,948	97.3	66,732	1916
503	1,009	438	158	3,460	1,535	414	181	47	....	578	77,516	95.7	80,971	1917
603	1,232	573	86	3,628	987	287	128	48	....	179	68,447	92.1	74,294	1918
374	770	758	173	2,899	1,386	337	212	107	....	83	74,228	93.4	79,496	1919
337	834	1,142	113	3,901	893	329	349	193	807	170	139,666	92.6	150,811	1920
163	447	691	104	3,836	165	37	424	246	2,333	109	107,421	95.7	112,279	1921
389	926	490	228	3,347	1,125	85	283	129	3,791	67	68,338	94.7	72,173	1922
733	1,750	584	710	5,154	1,187	163	655	261	6,262	139	78,108	94.9	82,293	1923
194	474	616	537	4,440	561	70	703	241	7,505	180	83,948	95.1	88,281	1924
338	840	720	559	4,923	654	99	974	356	6,207	185	89,953	94.9	94,819	1925
464	1,198	626	796	6,636	485	98	499	257	8,745	327	93,634	94.8	98,725	1926
311	732	629	1,204	6,452	540	113	608	234	9,492	258	102,702	95.0	108,067	1927
546	1,286	714	1,180	7,539	838	244	527	245	9,584	166	96,516	93.2	103,535	1928
22	60	265	534	3,104	1,104	226	442	257	15,337	186	72,475	88.7	81,723	1929

of the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

III. FOOD IMPORTS INTO PORTO RICO FROM THE

Year ending June 30	Population (Thousands)	Fish		Meat		Lard and Lard Compounds		Rice	
		Thousands of Lbs.	Lbs. per capita	Thousands of Lbs.	Lbs. per capita	Thousands of Lbs.	Lbs. per capita	Thousands of Lbs.	Lbs. per capita
1901	982	12,769	13.0	5,578	5.7	....	......	42,968	43.8
1902	996	21,963	22.1	7,618	7.6	5,556	5.6	54,438	54.7
1903	1,011	17,296	17.1	6,973	6.9	5,938	5.9	62,504	61.8
1904	1,026	17,148	16.7	6,599	6.4	5,756	5.6	65,457	63.8
1905	1,042	18,155	17.4	8,695	8.3	7,460	7.2	81,102	77.8
1906	1,057	22,154	21.0	10,898	10.3	7,850	7.4	92,498	87.5
1907	1,073	19,134	17.8	13,008	12.1	8,337	7.8	102,267	95.3
1908	1,089	20,014	18.4	13,350	12.3	8,694	8.0	84,845	77.9
1909	1,105	22,537	20.4	15,026	13.6	8,806	8.0	93,348	84.5
1910	1,121	25,136	22.4	13,012	11.6	10,437	9.3	117,731	105.0
1911	1,138	....	......	17,528	15.4	11,231	9.9	126,901	111.5
1912	1,155	18,672	16.2	21,056	18.2	9,921	8.6	134,725	116.6
1913	1,172	21,239	18.1	16,127	13.8	11,681	10.0	128,806	109·9
1914	1,190	19,931	16.7	19,265	16.2	11,919	10.0	140,238	117.8
1915	1,207	20,041	16.6	18,222	15.1	11,109	9.2	127,511	105.6
1916	1,225	18,205	14.9	19,859	16.2	10,871	8.9	143,236	116.9
1917	1,243	20,927	16.8	14,235	11.5	11,360	9.1	154,825	124.6
1918	1,262	17,523	13.9	11,325	9.0	8,865	7.0	127,749	101·2
1919	1,281	20,454	16.0	10,623	8.3	7,797	6.1	161,177	125.8
1920	1,300	30,148	23.2	13,644	10.5	11,368	8.7	133,449	102.7
1921	1,319	28,453	21.6	20,344	15.4	12,646	9.6	158,959	120.5
1922	1,339	30,461	22.7	25,569	19.1	14,477	10.8	159,164	118.9
1923	1,359	30,032	22.1	29,014	21.3	15,336	11.3	174,779	128.6
1924	1,379	38,244	27.7	34,952	25.3	15,839	11.5	190,590	138.2
1925	1,399	41,547	29.7	31,114	22.2	15,003	10.7	169,531	121.2
1926	1,420	43,201	30.4	29,054	20.5	13,811	9.7	184,200	129.7
1927	1,441	41,933	29.1	32,553	22.6	17,537	12.2	183,491	127.3
1928	1,463	36,700	25.1	33,141	22.7	16,541	11.3	187,140	127.9
1929	1,485	25,172	17.0	30,795	20.7	18,603	12.5	199,934	134.6

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[a] Food Imports compiled from *Annual Reports of the Governor of Porto Rico, of Foreign Commerce of the United States.* Population data for census years are sus data.

UNITED STATES AND FOREIGN COUNTRIES, 1901-28 [a]

Wheat Flour		Corn Meal		Beans and Peas		Potatoes		Year ending June 30
Thousands of Pounds	Pounds per Capita	Thousands of Pounds	Pounds per Capita	Thousands of Pounds	Pounds per Capita	Thousands of Pounds	Pounds per Capita	
43,078	43.9	5,878	6.0	2,973	3.0	6,801	6.9	1901
47,640	47.8	1,211	1.2	6,972	7.0	6,307	6.3	1902
52,530	52.0	1,674	1.7	4,628	4.6	6,379	6.3	1903
44,459	43.3	1,287	1.3	3,028	3.0	5,781	5.6	1904
39,219	37.6	1,443	1.4	3,637	3.5	6,974	6.7	1905
48,613	46.0	2,473	2.3	7,095	6.7	8,521	8.1	1906
54,306	50.6	7,834	7.3	11,552	10.8	9,732	9.1	1907
53,026	48.7	4,013	3.7	10,242	9.4	9.282	8.5	1908
58,325	52.8	6,477	5.9	11,141	10.1	9,482	8.6	1909
63,844	57.0	7,172	6.4	10,915	9.7	11,965	10.7	1910
68,145	59.9	8,909	7.8	12,348	10.9	....	....	1911
65,201	56.5	8,278	7.2	11,187	9.7	11,625	10.1	1912
69,606	59.4	10,110	8.6	12,574	10.7	12,817	10.9	1913
66,219	55.6	7,071	5.9	10,397	8.7	11,742	9.9	1914
59,304	49.1	15,343	12.7	12,273	10.2	9,655	8.0	1915
66,111	54.0	17,768	14.5	13,393	10.9	15,513	12.7	1916
60,861	49.0	15,354	12.4	14,960	12.0	12,651	10.2	1917
57,976	45.9	4,617	3.7	14,231	11.3	16,134	12.8	1918
76,040	59.4	4,491	3.5	12,617	9.8	17,639	13.8	1919
88,139	67.8	13,849	10.7	22,322	17.2	16,367	12.6	1920
74,618	56.6	13,086	9.9	29,856	22.6	24,384	18.5	1921
76,558	57.2	15,258	11.4	23,848	17.8	24,946	18.6	1922
83,055	61.1	15,168	11.2	21,595	15.9	28,183	20.7	1923
84,524	61.3	18,027	13.1	27,933	20.3	27,546	20.0	1924
80,117	57.3	14,134	10.1	29,304	20.9	55,734	39.8	1925
76,994	54.2	18,284	12.9	31.999	22.5	33,583	23.6	1926
91,019	63.2	26,308	18.3	33,502	23.2	37.172	25.8	1927
74,034	50.6	14,778	10.1	37,877	25.9	33,052	22.6	1928
100,475	67.7	25,620	17.3	43,888	29.6	51,368	34.6	1929

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from *Foreign Commerce and Navigation of the United States*, and *Monthly Summary* from the U S. Census. and for inter-censal years are calculated on the basis of cen-

IV. WATER-BORNE COMMERCE OF PORTO RICO BY PORTS, AVERAGE 1926-28 INCLUSIVE[a]

(In thousands of cargo tons of 2,240 pounds)

Ports	Imports			Exports			Total Trade		
	United States	Foreign Countries	Total	United States	Foreign Countries	Total	United States	Foreign Countries	Total
Aquadilla	24,201	3,193	27,394	21,301	63	21,364	44,502	3,256	48,758
Aquirre	364	—	364	18,298	—	18,298	18,662	—	18,662
Arecibo	22,517	1,124	23,641	20,450	—	20,450	42,967	1,124	44,091
Arroya	18,861	2,176	21,037	18,046	352	18,398	36,907	2,528	39,435
San Juan	450,554	162,053	612,607	273,820	16,836	290,656	724,374	178,889	903,263
Fajardo	9,766	1,215	10,981	43,479	—	43,479	53,245	1,215	54,460
Guanica	15,604	193,224	208,828	106,622	1,878	108,500	122,226	195,102	317,328
Guayanilla	23,201	95	23,296	17,488	227	17,715	40,689	322	41,011
Humacao	15,282	5,120	20,402	38,076	100	38,176	53,358	5,220	58,578
Jobos	10,923	—	10,923	70,387	—	70,387	81,310	—	81,310
Mayaguez	58,100	9,349	67,449	20,789	1,352	22,141	78,889	10,701	89,590
Ponce	118,279	34,491	152,770	41,376	16,345	57,721	159,655	50,836	210,491
Yabucoa	1,877	242	2,119	12,456	—	12,456	14,333	242	14,575
Vieques	424	—	424	3,695	—	3,695	4,119	—	4,119
Maunabo	1,144	213	1,357	4,860	100	4,960	6,004	313	6,317
Naguabo	87	291	378	6,185	—	6,185	6,272	291	6,563
Santa Isabel	—	—	—	15,355	—	15,355	15,355	—	15,355
Palmas Altas	293	—	293	12,676	—	12,676	12,969	—	12,969
Ensenada	—	—	—	1,513	—	1,513	1,513	—	1,513
Punta Arenas	90	—	90	4,943	—	4,943	5,033	—	5,033
Puerto Real	—	—	—	2,252	—	2,252	2,252	—	2,252
Rio Piedras	6	—	6	—	—	—	6	—	6
Cabo Rojo	—	—	—	867	—	867	867	—	867
Total	771,573	412,786	1,184,359	754,934	37,253	792,187	1,524,507	450,039	1,976,546

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[a] Source: Special Report D. S. No. 1211 of the Bureau of Research, United States Shipping Board.

APPENDIX E

THE SUGAR INDUSTRY

Cane is Porto Rico's leading crop and chief source of wealth. Of her total exports, which were valued at over $108 millions in 1928, well toward $56 millions were accounted for by three cane products—sugar, molasses, and alcohol. More than two-fifths of the Island's cultivated area and more than 11 per cent of its total area is under cane. Sugar manufacturers and cane cultivators pay directly nearly one-fourth of the insular and local taxes and support many accessory lines of business which contribute to the coffers of the government. In a word, the economic fortunes of Porto Rico are at present largely dependent upon this industry.

Under the Spanish régime, the policy which governed in Porto Rico already was "to put all its energy into the production of sugar, coffee, tobacco and cattle and import most of its food supply." [1] When the United States occupied the Island, coffee was the principal crop and the highest assessed valuations were in the coffee country. The manufacture of sugar had been depressed for several years. Indeed, many estates were completely idle and cane fields had been allowed to revert to pasture.

Naturally, Porto Rico's inclusion within the American tariff area had a pronounced effect upon the relative profitableness of her staple industries. Cane and tobacco cultivation benefited remarkably, while coffee growing received no protection. but instead was burdened with higher production costs than hitherto. Since coffee is grown in the mountainous interior, however, and for the most part on land unsuitable for cane or tobacco, the expansion of the latter crops did not, to any considerable extent, occasion an invasion of the territory of the former. Coffee growing survived, although in the position of a poor relation, and today the lowest assessments and land values are in the coffee region, while the highest are in the sugar country.

Cane growing extended, in fact, chiefly at the expense of grazing, which then occupied a large part of the coastal region. Thirty years ago, what are today wide expanses of cane were great stretches of green pasture where, during the rainy season, cattle stood shoulder high in the rank forage.[2]

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[1] Carroll, Henry K., *Report on the Island of Porto Rico,* October 6, 1899, G. P. O., 1899, p. 41.

Since 1900, therefore, sugar making has held a privileged position among the industries of the Island. During the period of abnormally high prices accompanying and following the World War, cane growing pushed into the foothills and interior valleys. Almost simultaneously, considerable areas of arid and semi-arid lands were brought under cultivation following the completion of extensive irrigation works financed by the government and the increase of pumping, partly as a consequence of cheap current supplied by power houses associated with the government plants. Cheaper power also made it possible to drain wet lands hitherto unserviceable for cane growing. As a result, the total area under this crop is now 237,000 acres, which is probably the maximum that can be profitably cultivated. In 1903 the Island's sugar exports for the first time exceeded 100,000 tons. In 1927-28, they reached a maximum of 605,620 tons, although their highest value was during the period of inflation in 1919-20, when it fell just under $99 millions. Part of the sugar made in Porto Rico is naturally consumed at home, and the total production in 1927-28 exceeded 751,000 tons.

In favorable years Porto Rico produces somewhat over one pound in eight of the sugar consumed in the United States. Already, however, the beet sugar crop of the mainland exceeds by a large margin that of any of our insular possessions, although the latter in the aggregate supply nearly double our maximum beet production. Porto Rico's output is less than that of Hawaii, which has twice her area, but exceeds that of the Philippines, which promise eventually to rival Cuba, at present the greatest sugar producer in the world.

Most of the Island's sugar is delivered at American refining ports during the first five or six months of the year, after the Louisiana cane crop and the mainland beet crop have been marketed, but during the height of the Hawaiian and Cuban shipping season. Freight charges from the plantation to the mainland wharf are somewhat higher than those from Cuba. Porto Rican producers do not control steamship lines and refinery facilities as do Hawaiian planters, nor do they enjoy

[2] Between 1897 and 1907 the area in cane increased from 61,558 cuerdas (acres) to 174,196 cuerdas, while the area in pasture decreased from 1,143,364 cuerdas to 856,764 cuerdas.

to the same extent as the latter the benefits of co-operative action in other lines. Since competition within the American tariff area does not determine sugar prices, however, these aspects of the Island's position do not control the larger fortunes of the industry.

I. THE COLONO SYSTEM

Plantation organization in Porto Rico resembles that in Santo Domingo, Cuba, and Trinidad, in that an appreciable portion of the cane ground at the centrals is grown by colonos, or small planters. In Hawaii and Java substantially all cane is raised directly by the companies operating factories, a method that largely accounts for the world lead those two countries hold in the technical perfection of their cultivation and manufacturing methods. On the other hand, in some countries, like Queensland and Natal, virtually all cane is raised by independent farmers. Since these differences of organization are the product of historical conditions, their respective advantages for the country where they prevail need not be discussed in a brief review. It may be noted in passing that Hawaii's highly centralized and technically perfected system of production is largely the result of labor shortage, and that the same cause explains why her plantation force remains nearly constant throughout the year, while in Porto Rico, which has a surplus of labor, the number employed varies approximately 7 to 12 between the dead and the grinding seasons.

Since the relation of the *colono* to the central is a matter of special interest in the Island, we may pause a moment to trace its development as a characteristic feature of the plantation system. During the century preceding the American occupation, cane became the principal crop of the coastal plain and, as was natural where slavery existed, land was held in extensive tracts by planters who operated their own mills. Spain's relative poverty, the slowness with which capital accumulated in the Island, poor roads, and the absence of a highly profitable market prevented an expansion of the industry comparable with that in the British West Indies during the eighteenth century. The white peasantry was not expelled from the Island as it was from Barbados, for example, nor did African slaves and their descendants overwhelm the Caucasian population. Nevertheless, tendencies were the same throughout the West Indies. In 1887, a native writer, in describing the growth of the sugar industry during the middle decades of the century, said: "Since the flat lands (the coast) are most suitable for cane, the rich proprietors dispossessed the peasants at every opportunity, and removed them to the broken country (interior)." As a rule, each mill owner acquired all the arable land within ox-cart haul of his mill and ample mountain or wet land pasture for his work cattle. In addition, little cane patches were tucked away in the interior valleys where sugar and molasess were made for local consumption by the most primitive methods. Ten years before the American forces landed at Guánica, 446 sugar mills were reported in the Island, of which 286 were moved by oxen and 160 by steam. Nearly all the steam mills were open kettle muscovado plants making sugar by an antiquated process. Moreover, cane was an intermittent crop. Of 289 sugar estates reported in 45 of the 72 towns in the Island, including those where cane was mostly grown, 80 were "not in cultivation." The Insular Bureau of Agriculture noted in connection with this report[3] that it had not given attention to "the multitude of Jamaica trains and small estates which exist only in good times."

One of the first effects of the introduction of modern methods of manufacture, which began with the erection of large centrals shortly after the American occupation, was to convert many of the old mill owners into *colonos* and to enable the peasants, who had hitherto given little attention to this crop, to become cane growers. A prominent sugar man, born in Porto Rico and associated with the industry all his life, writes:[4]

> *Advantages to Small Farmers.* Before the modern sugar factory came into existence cane cultivation was a privilege of the rich. Only those who had sufficient money to establish a muscovado mill, no matter how small, were able to cultivate sugar cane on their lands. Now even farmers who own only four or five acres of land will cultivate one or two acres in sugar cane, which they sell to the central factories on the same basis as those who can cultivate on a much larger scale, the railroad which forms a part of modern factory lay-out having made this possible.

The elimination of the neighborhood mill occurred gradually, however, and in 1910, nearly ten years after Porto Rican sugar was admitted duty free to the mainland market, the

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[3] Carroll, *Report on the Island of Porto Rico*, p. 116.

[4] Bird, Jorge, "The Economic Factors of the Central Sugar Mill," *The Book of Porto Rico*, pp. 541-43.

Island's crop was still manufactured in 146 establishments, classified as follows:[5]

TYPES OF SUGAR MILLS

Item	Modern Central	Old Steam Mill	Ox Mill
Number of mills	41	14	91
Total tons made	335,750	8,937	2,099
Average tons per mill	8,189	638	23
Percentage exported	96.4	76.6	.....
Percentage consumed in Porto Rico	3.6	23.4	100.0

Today 41 mills manufacture annually more than twelve times the quantity of sugar that 400 or more mills made before the American occupation; but there are single mills, and those by no means the largest in the Island, that grind the cane of more than 350 *colonos* whose average holdings are less than five acres and whose average crop is 65 tons. About one-fifth of the acreage serving one such central and about one-sixth of the cane that reaches its rollers belong to outside farmers and their tenants. Separated by a single intervening plantation from this central, which is owned by local capital and lies at the edge of the foothill country where most of these small farmers reside, stands one of the largest mills in the Island. This mill is owned by an American corporation and grinds four times as much cane annually as its neighbor. The lands that supply it, however, are exclusively coastal lowlands, most of which are either watered or drained by extensive irrigation works or pumps. *Colonos* supply relatively more of its cane—slightly over two-thirds—than they do in case of the neighboring plantation, but the principal one of these furnishes one-half and the three largest landholders in the vicinity together furnish four-fifths of the total. The whole number of *colonos* is 37, but they raise nearly ten times as much cane in the aggregate as the 350 foothill *colonos,* who sell to the mill first mentioned.

Some mills undertake no cultivation whatever, but are either owned co-operatively by a group of large *colonos,* or are the property of corporations which act exclusively as manufacturers. Since a *colono* may be a cash tenant, a cropper, either working on shares or raising cane on a tonnage basis, or a farmer tilling his own land, and since, if he is a cash tenant or a cropper, his landlord may be the company owning the central or an independent proprietor, and since, finally, he may simultaneously raise cane in several of these capacities, the relationships that may exist between him and the manufacturer are extremely varied.

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[5] *Memorial de la Asociacion de Productores Agrícolas de Puerto Rico.* Sobre Tarifas Arancelarias (1911).

Colono contracts, which are controlled by an Insular statute and may or may not be recorded in the registry offices, are essentially crop loan agreements. Although the obligation of the central to grind the *colono's* cane is a vital part of the stipulation, the mill's interest in performing this service is so obvious that the obligation is not usually recorded in the indenture. Occasionally contracts occur, however, in which the central makes no monetary advance to the cultivator and in such cases the mill expressly binds itself to grind the latter's cane. Three features of these contracts are of chief interest to the student of agrarian conditions, the interest rate charged on advanced, the degree of control exercised by the central over cultivation, and the amount the grower receives for his cane.

Until the establishment of the Federal Intermediate Credit Bank, crop loans to *colonos* ordinarily bore lower interest than land-secured loans to coffee and tobacco planters. This was partly because a central exercises closer control over the expenditure of the money it advances than is usually exercised by lenders to coffee and tobacco growers, and partly because these advances are secured by a crop that can be easily liquidated. The Intermediate Credit Bank has not generally loaned to *colonos* owning land, because, as stated by the manager at a conference held in 1927 to consider financing farmers interested in a new irrigation project, "lending money to a *colono* does not solve his problem, which depends primarily on his grinding contract." Unless a *colono's* cane is cut when it is in the best condition, and is ground without delay after cutting, the grower is likely to lose money on his crop. Therefore, centrals might have a motive to grind the cane of *colonos* whom they themselves are financing, and in whose ability to repay their loans they are directly interested, in preference to the cane of *colonos* who have borrowed from a bank. As a result those coffee and tobacco growers who could offer satisfactory security have of recent years been able to borrow from the Intermediate Credit Bank at lower rates than cane growers.

Recently, however, some 80 *colonos* growing cane for a large central in a region where there is considerable competition for cane, have been able to borrow from the company at

6 per cent. The latter is a large American corporation which enjoys the advantage of direct access to the New York money market. Smaller centrals generally pay 8 per cent for the funds they borrow from local banks or local branches of New York institutions. The sum total of this financing exceeds ten million dollars each crop season, but a comparatively small part of this money—probably not over two million dollars in the aggregate—is reloaned to *colonos.* Interest upon advances of the latter class is commonly 9 per cent, although it is sometimes as high as 12 per cent. The amount of credit granted a *colono* is proportional to the number of acres he has under crop and the anticipated yield per acre and is usually advanced to him in monthly installments, the interest on each installment beginning at the time it is placed to the *colono's* credit. Frequently the sum loaned per acre is not expressed in figures, but is described as sufficient to raise the crop. Where it is stated, it ranges from $20 upward per acre for the first year or planting season, and from $15 upward an acre for the second or maturing season when cultivation costs are less. Different centrals exercise varying degrees of control over the *colono's* operations, supervision naturally being closest where cane is grown on the plantation's land. Some contracts specify what varieties of cane shall be planted and in rarer instances how it shall be fertilized and irrigated.

Payment for the *colono's* crop is either at a flat rate expressed as a certain number of pounds of sugar for each hundredweight of cane, or on a sliding scale proportional to the sucrose content of the cane. A few contracts make the system of payment either a flat rate or a sliding scale rate at the option of the grower when the crop is delivered. Payment on a flat rate basis is the older system and is yielding ground to the sliding scale, partly because the former places no premium upon the quality of the cane delivered at the mill. A *colono* with a flat rate contract is interested solely in getting a maximum tonnage from his field accepted by the mill. Indeed, observers can conjecture the terms of a *colono's* contract from the appearance of the cane he delivers at the railway or weighing station. If it contains a large percentage of tops, dirty stool butts, and trash, it is safe to assume that the owner is selling at a flat rate per hundredweight. Many years ago the director of the experiment station of Porto Rico wrote:[6]

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[6] *The Cane Sugar Industry,* Department of Commerce, Miscellaneous Series, No. 53, p. 258.

> Under the system of buying cane by weight only, there is no incentive to the *colono* to produce cane of superior sweetness at maturity. He is paid in weight and his whole effort is to produce weight. We have seen the dire effects of this system; as a rule we have found that that part of a given plantation which is cultivated by administration is in a better condition than those parts leased to *colonos*, and the effect is at once seen in the mill, in passing from plantation cane to *colono* cane, by a lowering of the purity of the juice and consequently a diminished yield.

On the other hand, the sucrose contract creates an incentive to raise a high quality of cane and to deliver it in the best possible condition at the crushers. Since sucrose payment, however, depends upon an analysis of the juice of the *colono's* cane after it passes the crushers, the mill has full power to decide the value of the cane delivered to it. Still further control is placed in the hands of the buyer by a provision in many contracts stipulating that the cane shall come up to a minimum standard of purity and sucrose content, subject to penalties if this does not occur. Dissatisfaction with this situation has led to the introduction of bills in the Insular legislature providing for government chemists to supervise juice analyses and to exercise chemical control in mills, and prescribing that the *colono* shall receive at least 65 per cent of the sucrose content of his cane. Of the *colono* contracts filed at registry offices last year (1928) 605 called for payment at the flat rate, and 178 for payment on a sucrose basis. The lowest recorded payment under the former called for 5¾ pounds of sugar per hundredweight of cane and applied to only two contracts involving a negligible amount of land. Ten contracts stipulated 6 pounds of sugar, 60 contracts 6½ pounds of sugar, and 519 contracts, involving over 15,000 cuerdas, called for the payment of 7 pounds of sugar. A single contract for 50 cuerdas was made on a basis of 7½ pounds. Of the sucrose payment contracts, which covered over 14,000 cuerdas, as compared with 17,000 cuerdas under the flat rate basis, a great majority called for payment on a basis of 62½ per cent or 65 per cent of the sucrose content of the cane, the higher rate being the more common of the two. A single contract at 61 per cent, 6 at 62 per cent and 1 at 63 per cent complete the list. Naturally the sucrose contract throws upon the *colono* the risks of a bad season, when the percentage of sugar in the cane declines. During favorable seasons, however, contracts calling for payment on a 62.5 per cent sucrose basis prove more favorable for the grower than those stipulating a flat rate of 7 pounds of sugar per hundredweight of cane.

An analysis of 72 such contracts, terminating in 1927-1928, shows that they netted the sellers per hundredweight a minimum return of 6.47 pounds of sugar, a maximum return of 8.89 pounds of sugar, and an average for all contracts of 7.41 pounds of sugar. Since the *colono's* sugar is paid for by the central at New York prices less freight and brokerage, this was equivalent to about $5.90 a ton of cane.

A wide variation occurs in the rates paid for cane in different countries and under different conditions in the same country. In 1914 Porto Rican centrals paid nearly twice as much for *colono* cane as was paid in Cuba, where ratoonage for several years in succession is usual and land is relatively cheap.[7] Shortly after the war, when sugar prices were high, the average rate in Cuba was 5½ pounds of sugar a hundredweight of cane.[8] At the present time the principal central in the Island of Trinidad guarantees the small farmers supplying its mill a minimum of $2.88 a ton, which is less than one-half the usual price in Porto Rico;[9] and the average price paid last season on a large Santo Domingo plantation was $2.67 a ton. In Queensland, where the crop is grown exclusively by white labor and a high tariff enables the industry to carry production costs more than double those in most sugar countries, mills pay an equivalent of $10 a ton or more for cane.[10]

Existing statistical records do not show whether the number of *colonos* in Porto Rico has increased or decreased in recent years. Presumably they have decreased in the irrigated sections of the Island where land is exceedingly valuable, the annual irrigation tax amounts to $10 or $20 per acre, and intensive cultivation and fertilization are required to repay operating costs and interest on investment. These are the districts of large centrals and greater sugar corporations, where land once purchased remains indefinitely the property of the company and is not subdivided or sold in settling estates. Yet a study of the records of one of the largest irrigated plantations in Porto Rico indicates that during the last 15 years the number of *colonos* has slightly increased, although meanwhile the proportion of the cane ground at the central which is grown by *colonos* has fallen from 38 to 33 per cent.

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[7] *Ibid*, p. 255.

[8] Brief submitted by the Hawaiian Sugar Planters' Association before the U. S. Tariff Commission, March, 1924, p. 12.

[9] Shepard, C. T., "The Sugar Industry of the British West Indies," in *Economic Geography*, Vol. 164, April, 1929.

[10] Maxwell, *Economics of Cane Sugar Production*, p. 97.

From a strictly technical standpoint, sugar can be produced more efficiently and cheaply where both cane growing and sugar manufacturing are under a single administration. The highest cane and sugar yields per acre, the best qualities of cane, and the maximum recovery of sugar per ton of cane, are found in countries where all operations from plowing the field to bagging the sugar are under one management. In Porto Rico cases have occurred where the transfer of land from a *colono* to a plantation company has increased yields by more than one-third. One of the world's leading sugar experts, whose personal studies cover a majority of the great cane-growing countries, enumerates among the reasons why planters in Java and Hawaii obtain over five tons of sugar per acre the fact that "in both countries the field as well as the factory is under complete control of one and the same manager and his staff."

No statistics are available showing the proportion of cane land cultivated by *colonos* that is owned in fee simple or is leased from the companies operating the central. Moreover, such figures for any single year, if they existed, would not be necessarily valid for a series of years, as they vary with the price of sugar. For example, the percentage of *colono* cane ground at centrals whose records are available declined sharply in anticipation of the reduction in the sugar tariff in 1913. In rainfall districts where small holders are more numerous and cane is raised in the foothills, the qualities of the *colono's* land, and of his crop, average lower than those of the plantation, while in irrigated sections the reverse may be true; for there some of the best lands remain in the possession of the original proprietors or represent a concentration of ownership of previously smaller parcels in the hands of big cane farmers. *Colonos* do not improve their cane varieties as rapidly as plantation companies and usually fertilize less heavily. As a result of these conditions rather than of poorer soil, the sucrose content of *colono* cane runs lower than that of "administration" or plantation cane, the figures for a group of representative plantations in both the northern and the southern sections of the Island being 12.63 on the small farms and 13.1 per cent on the plantation land, respectively. On one of the largest and best administered of these plantations, however, where fields are irrigated and highly intensive methods of cultivation are pursued, this relationship was reversed, *colono* cane averaging 13.89 per cent, while that raised directly by the planting company averaged 13.51 per cent.

A government investigation made in 1915 and 1916[11] reported from eighteen establishments yields of plantation cane for the 1913-1914 crop ranging between 12.28 and 25.98 tons per acre, and yields of *colono* cane raised by 26 growers ranging from 7.42 to 21.83 tons per acre. Averaging these returns by the number of establishments and of growers respectively, the yields were 18.42 tons per acre for plantation cane and 12.96 tons per acre for *colono* cane. Similar figures were not collected for the 1927-28 crop because the areas of cane harvested by *colonos,* especially in small farming districts, could not be ascertained with sufficient accuracy. Of two centrals which bought most of their cane from large growers whose fields had been surveyed, the first reported acre yields of 29.4 tons on plantation land and 25.5 tons on *colono* land; the second reported 38.2 tons on plantation land and 35.9 tons on *colono* land. The government investigation just cited indicated that in 1913-14 plantation cane cost slightly more than *colono* cane, or $3.92 a ton as compared with $3.89 a ton. This does not invariably hold true today. On one of the few plantations whose books segregate these data, estate cane cost last year $6.14 per ton compared with $6.59 a ton for *colono* cane. Upon another plantation these figures were $7.07 and $7.97, respectively. On a third plantation, however, *colono* cane was somewhat cheaper, costing upon an average for the 1927-28 crop $5.81 as compared with $5.85 for cane grown by the plantation. Some large centrals buy cane in the open market, from commission men and speculators who contract with independent farmers for their crops or finance *colonos* on their own or leased lands. In a few districts where cane grown by small farmers must be shipped a considerable distance by rail to a central, these middlemen concentrate the small ox-cart deliveries, brought daily to the shipping point by the growers, in the fourteen-ton lots necessary to get carload rates. Last year one central paid $5.71 a ton and another central paid $5.77 a ton for open market cane. In the case of the first of these establishments, this price was higher than the cost of raising cane on plantation land, while in the case of the second it was slightly less.

On the whole, *colonos* who have retained their lands appear to be in a better position than they were during the first years following the American occupation. Twenty-five years ago the going rate for *colono* cane was five pounds of sugar per hundredweight, or five-sevenths of the ruling price today. Meanwhile increased yields probably compensate for added costs of cultivation. Grinding capacity now exceeds cane supply in most districts and competition naturally results. This is to be expected in an island where the amount of land suitable for cane growing is limited and crop increases depend upon improved seed and more intensive cultivation, while plant expansion takes a spurt with each boom in the sugar market.

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[11] *The Cane Sugar Industry,* pp. 253-5.

In the spring of 1929, Mr. J. A. Dickey, of our survey staff, conducted a study of the farm organization and management of 36 *colonos* in the sugar-growing district of the northern part of the Island, from which he secured 31 records with a sufficient degree of accuracy to permit tabulation. These have been analyzed in five size-groups, according to the number of acres in cane of the *colonos* covered. The number of farms, average size of farm and average cane acreage in each size-group is as follows:

Acres in Cane	Number of Farms	Acres per Farm	Average Acres in Cane
10 or less	5	32.0	8.5
11-25	7	126.0	21.8
26-50	7	176.7	41.2
51-200	7	446.3	154.9
Over 200	5	897.0	482.6

A tabulation of the results of this analysis, together with Mr. Dickey's comments, are presented below.

> A variety of crops were grown on the farms covered by the 31 records, most of such crops being of only occasional value on most farms. The only instance in which a minor crop attains a relative importance as great as 7 per cent of the total, as will be seen from the table following, is tobacco on farms of 26 to 50 acres in size.
>
> In the smallest size group, 80 per cent of the receipts come from sugar cane, while practically all of the receipts come from this source in the two larger size-groups. Receipts from tobacco, other crops, and livestock sales, and from work done off the farm are more important, in the farms ranging between 26 and 50 acres in size, than in any other size-group. It so happens that one of these farms is located near a town in which the operator sells some milk and vegetables, while the operator of another farm in this group was doing road work. Opportunity for increasing the income from these two sources is limited to only a few farms and is not typical of the area.

AVERAGE RECEIPTS AND EXPENSES OF NORTH COAST FARMS WITH SPECIFIED CANE ACREAGE

I. Receipts from the Several Crops Grown

Crop	10 Acres or less	11-25 Acres	26-50 Acres	51-200 Acres	Over 200 Acres
PRINCIPAL CASH CROPS	$725	$2,150	$5,196	$17,179	$54,774
Cane	725	2,050	4,145	17,006	54,474
Tobacco	...	100	1,051	173	300
FOOD CROPS SOLD	...	36	328	....	....
Bananas	...	...	5	....	....
Sweet potatoes	....	36	80	....	....
Others	...	...	243	....	....
LIVESTOCK AND LIVESTOCK PRODUCTS	...	100	245	....	....
Livestock	...	60	100	....	....
Livestock products [a]	...	40	145	....	....
MISCELLANEOUS [b]	173	127	437	15	15
TOTAL RECEIPTS	$898	$2,413	$6,206	$17,194	$54,789

II. Classified Expenses

MATERIAL PURCHASED	$100	$160	$499	$1,393	$5,533
Seed	...	...	...	8	38
Fertilizer	100	160	374	1,352	5,461
Insecticides	...	...	35	....	1
Miscellaneous	...	...	90	33	33
LABOR	630	1,199	3,411	10,027	38,104
Labor	200	723	3,262	9,055	36,115
Supervision	...	38	114	773	1,820
Unpaid labor	418	428	...	128	..
Compensation insurance	12	10	35	71	169
REAL ESTATE COSTS	392	1,323	2,500	4,598	7,439
Taxes	88	212	304	1,065	716
Rent	...	9	165	....	365
Repair on buildings	101	321	487	341	1,333
Repair on machinery	...	9	44	219	330
Interest on investment	203	772	1,500	2,973	4,695
TOTAL EXPENSE	$1,122	$2,682	$6,410	$16,018	$51,076

[a] Largely dairy products.
[b] Work off farm.
[c] Less than 1 per cent.

Expenses of production on these farms are fairly uniform in character. The average total expenses per acre of cane were about $110.00. With the exception of the 26 to 50 acre group, the maximum variation in the expenses per acre of cane between the other groups was $24.00 an acre. In the 26 to 50 acre group, the expenses per acre were higher than the other groups due to the relatively large acreage of tobacco in this group.

In all groups except the 11 to 25 acre, labor forms the largest single item of expense. All the labor on the larger size farms is paid labor and even on those farms of 10 acres and less of cane 30 per cent of the labor is paid labor. The use of capital and real estate is the second largest item of expense. There is some variation in the proportion which labor and real estate form as between the various size groups. In the largest size groups labor formed 75 per cent of the total cost, while the use of capital and real estate formed only 14 per cent of the total expense. In no other size group is the use of capital and real estate so small. The investment per acre is somewhat smaller on the larger size farms than on the small farms. Taxes formed about 12 per cent of the gross expense of the two smallest groups and only about 5 per cent of the gross expense of the two groups of 26 to 50 and 51 to 200 acres in cane and only about 2 per cent of the gross expense of the largest size group.

The three large size groups spent more on the average per acre for labor than the two small size groups while their real estate cost was considerably less than the two small size groups so that the total expense per acre of cane was less on the three large size groups than on the two small size. The principal difference in the expenses as between the size groups was the lower cost for the use of capital and real estate on the larger farms. In other words, the principal differences in expenses between the size groups was that the larger farms, while having on the average a higher labor cost per acre, had a lower cost for capital and real estate, the lower cost for capital and real estate being sufficient to offset the higher labor cost and enable the larger farms, especially those in the two largest size groups, to operate with a smaller total expense per acre.

By bringing together the figures showing average receipts and expenses per farm for farms in the several size groups indicated in the preceding table we find that the net returns to farm operators for labor and management were as follows:

Acres in Cane	Receipts	Expenses	Return to Operator
10 or less	$898	$1,122	—$224
11-25	2,413	2,628	—215
26-50	6,206	6,410	—204
51-200	17,194	16,018	1,176
Over 200	54,789	51,076	3,713

The operator with ten acres and less of cane, if he charged nothing at all for his own labor and management, made only $168.00 above current crop expenses. This amount lacked $20.00 of paying for building repairs and taxes, to say nothing of the use of real estate. In other words, even though the operators on the farms of ten acres and less of cane had no indebtedness they could not continue business on the basis of the average results obtained from their operations in 1928. Even when no charge is made for the labor and management of the operator only one of the five farms with ten acres and less of cane came within $25.00 of paying crop expenses and paying for the use of capital and real estate.

The operators in the two groups of 11 to 25 and 26 to 50 acres in cane met all current expenses but even if they charged nothing for their own labor and management still lacked $269.00 and $204.00 respectively of paying for the use of capital and real estate. In other words, farmers of these two groups could on the average, if they owned their own farms, free of encumbrance, continue to operate the farm and earn about 4 per cent on their investment, but have nothing left for their own management and labor. The operators in the 51 to 200 acre group and the group over 200 acres were meeting current operating expenses, paying for the use of capital and real estate at the prevailing rate of interest and earning good returns for their labor and management.

The number of records is insufficient and the details of organization and enterprise operations too meager to permit a critical test of the factors underlying the differences in the earnings of the operators. In general, it appears that the operators making the highest earnings did so quite largely as a result of the slightly lower fixed cost per acre of cane, somewhat higher receipts per acre of cane due to the higher yield per acre and to a slightly higher price per hundredweight of sugar. In other words, the efficiency with which the sugar enterprise was conducted very largely determined the profits of the operator. On the other hand, it appears that the number of acres of cane or the size of the operations was the principal factor in determining the effectiveness with which the sugar enterprise was conducted.

The lower cost per acre was largely due to the lower fixed charges which were in turn due to the fact that with the increased acreage in cane there was an increase in the proportion of land in cane. Also land in buildings and drainage facilities occupied a small proportion of the land on the larger farms. As indicated in the table on page 623, taxes on the basis of gross income and on the basis of the per acre costs were much higher on the small farms than on the larger farms. Apparently there is much that might be done to eliminate this inequality in the taxation system. On the other hand, even if small farms paid no taxes they would not be able to meet current crop expenses and pay for the use of capital.

The larger farms on the average were using more labor per acre than the small farms. They were also using more livestock and machinery. It appears that the increase in the amount of labor per acre on the larger acreages contributed to the increased yield per acre, and the increased number of livestock and larger use of machinery and the larger acreages also affected the yield per acre and increased the efficiency with which the labor was used. Even if the small farms had used as much labor and equipment as the larger farms they could not have made as efficient use of this equipment as the large farms. At the same time, if the yields per acre and price of sugar per hundredweight had been as large on the small farms, the net receipts would still have been less on the small farm, owing to the higher expense per acre. In other words, it appears that each unit of current operating cost brought a greater number of units of returns on the larger acreage than on the smaller acreage.

It appears that unless there is a material increase in price of sugar or a very large decrease in expenses, the farmer on the North coast with less than 25 acres in cane will not be able to meet crop expenses, to say nothing of the use of real estate and return for his own labor and management. Even though the operator includes his own labor and management at hired men's rates, it appears that 50 acres of sugar cane on the North coast is the minimum with which he can make operating expenses and pay for the use of real estate.

The price of land suitable to sugar cane production appears to be largely based on the earnings of large scale operations. The earnings of the farmer whose acreage of cane is too small to permit the efficient use of labor-saving implements and effect other economies in production that go with large scale production, are not sufficient to pay for the use of capital, even though he is able to meet current operating expenses. Increase in land values has permitted increased borrowings and apparently enabled small operators to continue operating, even though the lands did not justify the operations. The increased indebtedness will, however, sooner or later force these small holdings into large holdings. The operator has two considerations in the matter. One is whether or not to continue borrowing as long as possible, which in effect is consuming his own capital until it is all gone, or to sell his properties outright, and look wherever he may for employment. From his own point of view, apparently he would be in a better position to bargin effectively if he sold his holdings before his equity was entirely wiped out.

II. LAND RENTALS AND PRICES

Of the 237,000 acres more or less of cane land on the assessor's rolls, possibly one-fourth belongs to colonos and one-half is owned by plantation companies. The remainder is leased by these companies from private owners. The area thus rented according to the registry office records is somewhat over 78,000 acres. Presumably only about two-thirds of this area is suitable for cane, the remainder being used for grazing work cattle or controlling water rights. The average annual rental of all the leases recorded is $16, to which taxes must be added. Wide variations in this rate naturally occur according to the proportion of cane lands in different tracts, their location with respect to transportation facilities, and the quality of their soil. As a rule rents are lower in the rainfall country and higher in the irrigated sections of the Island. One large American corporation pays an average of over $27 for all the land it leases. Rising rentals and land prices, in the face of the falling price of sugar, are an expression of the monopoly value of Porto Rico's cane fields.

A few examples of specific rentals per cuerda (acre), not including taxes which are paid by the renter, follow:

Establishment	1923		1928	
1. Specific leases		$16.00		$21.00
2. Average of all leases		12.74		12.75
3. Average of all leases		14.13		15.41
4. Maximum and minimum rentals	$8.00	12.00	$15.00	$25.00
5. Maximum and minimum rentals	18.00	20.00	25.00	30.00
6. Maximum and minimum rentals	6.00	12.00	6.00	24.00

Maximum rentals do not invariably represent the true value of the land for cane growing as they, like land values, may depend upon certain strategic advantages possessed by the tract in question. For example, one corporation has a lease that costs it in favorable years more than two dollars for every ton of cane grown on the land in question, although one dollar per ton is about as high as business prudence counsels a central to pay. In this case, however, the tract carries with it valuable water rights. Other considerations apart, however, annual rentals, not including taxes, are estimated at about 8 per cent of the capital worth of the property.

Land prices mounted skyward during the period of abnormally high sugar prices following the war, and having once attained an elevated level never have appreciably declined. In fact, they appear to have risen somewhat during the past five years. Based on actual purchases, they have ranged as follows:

Establishment	1923	1928
1	$150 and $200	$250 and $300
2	$275	$700
3	$200	$300 [12]
4	$152 and $270	$182 and $315
5		$250
6		$350 [12]
7	$200 [13]	$300
8	$200 and $250	$275 and $450

The highest prices reported were presumably paid for land required for a right of way or for water control. Between 1915 and 1928 the average assessed value of cane land in Porto Rico increased from $72 to $171 per acre. The balance sheets of three favorably situated and representative plantations of moderate size, made by independent auditors shortly after the collapse of the sugar market in 1921-1922, rated the value of the cane lands owned by these companies, according to their character and situation, at from $75 to $245 an acre. More than 20,000 acres of cane land belonging to a large American corporation stood on its books in 1928 at a few cents over $146 an acre. Very little land suitable for cane growing can be bought for less than $100 an acre even in the foot hills; while fertile bottom lands accessible to transportation command $500 or more an acre. To the overhead represented by the latter investment must be added a fixed charge, in addition to taxes, of $10 to $17 per acre for irrigation water, or in some instances $12 per acre or thereabouts for drainage. This group of items, to which we shall have occasion to refer later, includes the chief factors raising the cost of producing cane in Porto Rico above that in Santo Domingo, Cuba, and other Caribbean islands.

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[12] In 1927.

[13] In 1921.

III. THE 500-ACRE LAW

On May 1, 1900, Congress adopted a joint resolution providing, among other things, that each corporation thereafter authorized to engage in agriculture in Porto Rico or the Philippine Islands should by its charter be restricted to the ownership and control of not to exceed 500 acres of land. This provision was made an integral part of the original organic act of Porto Rico and of the organic law now in force. It reflects primarily the desire of Congress to prevent a recurrence of a situation resembling that which had existed in the Philippines in connection with the friar lands, which was prominent in the public mind at the time the resolution was adopted. Its application to Porto Rico has never been fruitful of results, nor can it be made effective under any construction of the Constitution of which we have judicial precedent. Virtually all the big sugar corporations, whether controlled by Islanders, Mainlanders, or Europeans, hold extensive areas, the title of which is vested in private individuals or partnerships acting as their trustees. As long as the right of an individual to own land is recognized as sacred this circumvention of the law will be an easy matter.

Under such circumstances the desirability of retaining this futile act upon the statute books may be questioned. Nor is it at all certain that it would be a beneficial enactment could it be enforced. Sugar can probably be made most efficiently and economically by companies that combine agriculture and manufacturing under a single management. In no country, except Australia, where sugar is produced under highly artificial conditions, or in countries like Java, where the cultivator is regimented in a way that would not be tolerable under American conditions, have landless centrals succeeded. In Java most cane is raised on land leased from the native villages, but this leasing is regulated in its minutest details by an autocratic government, and the share of sugar received by the cultivator is only 50 per cent, compared with 60 to 70 per cent in Porto Rico.

Co-operative mills have been tried in many countries, including Hawaii, and have succeeded only where they are owned and controlled by a few big growers whose crops are virtually "administration" cane. Indeed several such mills are now operating in Porto Rico.

An efficient modern central must receive not less than 1,000 tons of cane per day, delivered regularly throughout the grinding season of four to five months. The nearer to the date of maximum sucrose content cane is delivered to the crushers, the bigger the return for its owner. No method has been devised by which privately owned centrals or co-operative centrals owned by a large number of small growers have in actual practice solved the problem of grinding each grower's cane at the date which will yield him the maximum remuneration. But a mill raising a goodly portion of its own cane can distribute its crop between early and late plantings—called *gran cultura* and *primavera* in Porto Rico—and between short and long ratoons so as to spread the ripening time over several months.[14]

Again, modern methods of cultivation demand a capital investment in machinery beyond the means of an ordinary farmer. A modern steam plow set costs $30,000 and upwards and can be used with economy only in very large fields. Portable track and cars, when these are necessary, represent an investment too large to be handled except by a big business enterprise or by a closely organized corporation of co-operative producers who at harvest time are almost certain to have discordant interests. Irrigation and drainage call for pumping and distributing systems that only a big enterprise or an unusually efficient and well-financed co-operative organization can handle. Indeed, a lengthy enumeration might be made of the reasons why a central large enough to make sugar economically should control directly enough land to supply one-half to two-thirds of the cane it grinds.

In addition to these technical objections, this law tends to confuse the whole question of corporation control by diverting attention into sterile channels. In the larger task of reconciling the great industrial organizations of today with social welfare, every effort should be made to clarify the fundamental conditions under which these organizations operate. Any statute that forces economic evolution into devious channels beclouds those conditions. It would be easier to appraise the influence of great corporations in Porto Rico and to control their activities, so far as that may be desirable in the public interest, were their investment structure not distorted by useless and misconceived legal trammels. It would be better to let the centrals own directly as much cane land and tributary grazing and water-shed land as they need for the specific purpose of making sugar and then to regulate them, if that proves necessary for the protection of the public, than to encourage a development that entirely removes an important part of their property and activities from the jurisdiction of corporation law.

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[14] *Caña primavera* in the nomenclature of Porto Rico means cane planted between January and June during the grinding season; *gran cultura*, or *caña de plantilla*, is main crop cane planted during the dead season between July and October. Ratoons are second or third growth cane allowed to spring up from the old roots without replanting.

IV. COMPARATIVE CROP YIELDS

Technically Porto Rico occupies an advanced position as a sugar-producing country. Thanks to effective co-operation between the large centrals and the Insular Department of Agriculture, new varieties of cane have been introduced which have proved resistant to prevalent pests and diseases and have notably increased the average yield per acre. Since 1925, one group of three centrals controlled by a single corporation has increased its sugar output 75 per cent with an increase of only 4.2 per cent in the area under cultivation.[15] Some fields in the irrigated section have produced in exceptionally favorable seasons as high as 95 tons of cane per acre, but the average for the whole Island is still under 25 tons. The following figures afford only a very approximate comparison of the acre yields of five leading cane-growing countries:

Country	Tons of Cane Per Acre	Tons of Sugar Per Acre
Hawaii[16]	57.6	6.6
Java[17]	45	5.5
Cuba[17]	20	2.0
Philippines[17]	20	2.0
Porto Rico[18]	24.5	2.7

One Hawaiian plantation has produced an average crop over a five-year period of 75 tons of cane and nearly 9 tons of sugar per acre. Certain lands along the south coast of Porto Rico have produced upwards of 100 tons of cane per acre, and one of the largest mills has averaged 6½ tons of sugar from 13,000 acres.

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[15] *Informe del Comisionado de Agricultura y Trabajo, 1926-1927*, San Juan, 1928, pp. 7-8.

[16] Average for all plantations from Hawaiian Sugar Planters' Association Reports for 1926-27 and 1927-28.

[17] Maxwell, Francis, *Economic Aspects of Cane Sugar Production*; London, 1927, pp. 53, 57.

[18] Average of three representative plantations producing approximately 125,000 tons.

A second comparison, which unfortunately is not for identical years or in all cases for an equal number of years, suggests that Porto Rico may still rank lower than several competing countries in respect of the quality of its cane.

Country	Sucrose	Fibre	Purity Mixed Juice	Tons Cane to Ton of Sugar
Hawaii[19]	15.2	12.5	83.7	8.7
Cuba[20]	13.0	10.3	83.8	8.5
Philippines[20]	13.0	11.3	82.2	...
Java[20]	12.7	13.0	84.2	8.8
Porto Rico[21]	13.0	12.2	82.3	8.5

V. COSTS OF PRODUCTION

Costs of production are relatively high in Porto Rico compared with those in other tropical countries supplying sugar to the American market. According to investigations made at various times by the United States government, supplemented by figures for Porto Rico subsequent to 1922-23 supplied by the Sugar Producers' Association of that Island, these costs were as follows for the years indicated:

Weighted Average Cost (Excluding Interest) of Producing Sugar
(F. o. b. mill, in dollars per ton of 2,000 pounds)[a]

Year	Porto Rico[b]	Cuba	Hawaii	Louisiana
1913-14..........	$52.30	$28.76	$44.14	$86.80[c]
1916-17..........	74.63	52.67	62.71	85.41
1917-18..........	86.80	69.24	69.18	106.72
1918-19..........	108.32	79.91	79.63	142.78
1919-20..........	166.03	150.68	148.66	224.41
1920-21..........	98.54	75.91	86.93	149.76
1921-22..........	76.88	40.08	79.45	76.78
1922-23..........	103.99	66.23	93.34	96.24
1923-24..........	103.11	.....	.....	.....
1924-25..........	75.82	.....	.....	.....
1925-26..........	73.91	.....	.....	.....
1926-27..........	81.60	.....	.....	.....
1927-28..........	72.94	.....	.....	.....

[a] From Report of United States Tariff Commission, *Sugar*, 1926, pp. 16-18.

[b] Data for Porto Rico for 1913-14 are from the *Cane Sugar Industry*, Miscellaneous Series No. 53, Department of Commerce, p. 34; for 1923-28 were compiled by the Association of Sugar Producers of Porto Rico.

[c] For 1911-12.

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[19] Average for all plantations from Hawaiian Sugar Planters' Association Reports for 1926-27 and 1927-28.

[20] Maxwell, Francis, *Economic Aspects of Cane Sugar Production*, p. 43.

[21] Average for seven plantations, producing over 300,000 tons of sugar.

Costs vary widely on different plantations. According to an investigation made by the government in 1914, they ranged per ton in Porto Rico from $44.02 to $67.02. Costs for the 1927-28 crop in the same Island, on plantations whose books could be consulted or from which detailed data were otherwise obtained, were as follows:

Establishment	Cost Per Ton
1	$64.06
2	64.20
3	65.21
4	67.93
5	69.40
6	74.20
7	77.80
8	80.30
9	92.54
Weighted average	$68.42

It proved impossible to procure information from a sufficient number of plantations to show bulk line cost for the Island's total crop, but the first five establishments in the list are fair average examples from both the rainfall and the irrigated sides of the Island. Establishments 6, 7, and 9 are small centrals situated in the interior where cane yields are low.

Apparently, therefore, the total cost of making sugar in Porto Rico has not risen since the war as rapidly as the general price level. Moreover, that total has risen only about 40 per cent since 1914, although in the meantime the cost of bringing an acre of cane to maturity has increased about 64 per cent, and the cost of harvesting has increased over 55 per cent. According to the accepted authorities,[22] factory costs between 1914 and 1928 about kept pace with total costs, rising 40 per cent, or from $7.72 to $10.82 a ton. This increase does not obtain for all factories as the following figures for the crop year 1927-28, procured from the plantations independently, testify:

Establishment	Manufacturing Cost Per Ton
1	$5.08
2	5.73
3	5.83
4	7.20
5	7.46
6	9.20
7	11.16
8	16.68
Weighted average	$7.22

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[22] *Sugar*, United States Tariff Commission, 1924, p. 16, supplemented by data furnished by the Sugar Producers' Association of Porto Rico.

This discrepancy between the trend of total costs and the trend of the principal individual items in those costs is due almost entirely to scientific cane selection, which has augmented yields per acre. The controlling influence of cane improvement upon production costs is illustrated by the following figures showing average field cost of bringing all cane, including ratoons and early and late plantings, to maturity:[23]

	1914	1918	1923	1928
Cost per acre	$69.04	$78.54	$83.25	$113.07
Tons per acre	25.53	28.53	24.76	51.98
Field cost per ton	2.70	2.77	3.36	2.17

Weather and other seasonal conditions naturally affect these data. They apply, moreover, to an especially favored section of Porto Rico and they might not prove true of the entire Island. Nevertheless, had it not been for the adoption of better cane varieties within the last few years, field costs per ton would have presumably maintained the upward trend they exhibited between 1914 and 1923. Nor is it probable that any similar betterment will again, at least in the immediate future, radically deflect this trend from a normally ascending curve despite new economies in cultivation and manufacture. Increasing overhead as represented by higher land values and heavier taxation, soil exhaustion, and a rising standard of living likely to be reflected in labor charges, all operate to maintain or augment those costs.

Land prices have advanced consistently since the American occupation in response to increasing population pressure and the larger returns due to improved methods of cultivation and better markets and marketing facilities. They might have been expected to reach a maximum, at least in the sugar country, soon after the period of abnormally high sugar quotations that followed the war. We have seen, however, that they have continued to rise since 1923, as indicated both by purchases and by rentals. Meanwhile old taxes have been increased and new taxes have been imposed. The strictly fiscal aspects of these contributions are discussed elsewhere, and only their relation to production costs need be recorded here. Verifiable figures from the books of six plantations producing about one-third of the sugar made in the Island illustrate their recent trend. The figures, showing the percentage of total cost of production represented by taxes in the years 1923 and 1928 respectively, are given below:

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[23] These figures do not include superintendence and similar general expenses or taxes, rentals and other overhead costs.

Establishment	1923	1928
1	2.33	5.12
2	2.17	7.02
3	3.66	5.17
4	3.42	6.52
5	3.04	6.12
6	2.50	6.50
Average, weighted by tonnage	3.14	6.13

Evidences of soil exhaustion have presented themselves in all the staple crop regions of Porto Rico, as a result of long occupancy and tillage, continued cultivation of the same crop in the same localities, and the tenancy system. Leasing has not in the past favored the maintenance of soil fertility, to say nothing of bringing land up to new standards of productivity. To quote from a report of the Director of the Experiment Station of Porto Rico, made several years ago but still true today: "The tenant having a lease of land for only a few years, it is not to his interest to build up the land and, as a result, a destructive system of cultivation is adopted which leaves the land at the end of the term in an impoverished condition."[24] It should be said, however, that this applies far less to leaseholds cultivated directly by large centrals, which have an interest in promoting heavy cane yields in their tributary territory, than to the holdings of smaller tenants which are still a prominent feature of the Island's land system. Quoting from the same authority:[25]

> Almost all of the soils now used for cane growing are sedimentary; the plantations are found mostly along the coast and in the opening of valleys forming the various water-sheds. On the east coast and as far as San Juan on the north these soils, as a rule, are stiff clays, comparatively thin (though there are notable exceptions to this), and difficult to cultivate. The soils to the west of San Juan are deeper and richer and have the added advantage of being of limestone formation.
>
> On the south coast soils of all classes are found, but, as a rule, they are deep, rich, and in many cases of limestone formation. Most of these soils, while evidently of great productivity originally, have been impovished by a destructive system of cultivation—a system which, with shallow plowing and continuous cropping without fertilization, has so impoverished the soil in many places as to render it unproductive.
>
> Compared with Hawaii the soils are not naturally fertile. The soils of Hawaii are derived in most cases from basaltic lava, are fresh, and of great natural productivity. Nor are they as fresh and rich as the

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[24] *The Cane Sugar Industry*, p. 258.

[25] *Ibid.*, pp. 255-56.

Cuban soils, which in many cases are of limestone origin. The large amount of lime in the Cuban soils, coupled with the fact that the cane trash is not burned but incorporated with the soil, enables the Cuban planter to ratoon cane much longer than is possible in Porto Rico.

What is here said of Cuba is even more conspicuously true of Santo Domingo. Though that island has been settled and cultivated even longer than Porto Rico, it still possesses large areas of practically virgin soil which yield bountiful crops without fertilization. Indeed, one very large mill in that

WAGE RATES IN THE GRINDING SEASON, 1913-1928[a]
(Adult male day workers, by wage classes)

I. From a Mill Payroll[b]

April of Year Indicated	Under $.50		$.50–$.74		$.75–$.99		$1.00–$1.49		$1.50–$1.99		$2.00 or Over		Total Number on Payroll
	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	
1914	5	*1.3*	182	*46.7*	80	*20.5*	92	*23.6*	19	*4.9*	12	*3.0*	390
1915	2	*.6*	141	*40.2*	76	*21.7*	99	*28.2*	20	*5.6*	13	*3.7*	351
1916	8	*2.0*	140	*35.6*	100	*25.4*	101	*25.7*	27	*6.9*	17	*4.4*	393
1917	4	*.9*	176	*39.8*	115	*26.1*	108	*24.4*	23	*5.2*	16	*3.6*	442
1918	2	*.5*	48	*11.3*	186	*43.8*	144	*33.8*	25	*5.9*	20	*4.7*	425
1919	1	*.2*	2	*.5*	180	*40.7*	186	*42.1*	31	*7.0*	42	*9.5*	442
1920	—	—	1	*.2*	3	*.6*	48	*10.2*	291	*61.7*	129	*27.3*	472
1921	—	—	1	*.2*	—	—	59	*11.9*	238	*47.9*	199	*40.0*	497
1922	—	—	3	*.7*	162	*39.6*	188	*46.0*	12	*2.9*	44	*10.8*	409
1923	1	*.2*	2	*.5*	56	*13.1*	188	*44.1*	129	*30.7*	51	*11.9*	427
1924	—	—	3	*.7*	51	*11.9*	183	*42.8*	126	*29.4*	65	*15.2*	428
1925	—	—	4	*.9*	50	*11.8*	199	*46.8*	118	*27.8*	54	*12.7*	425
1926	9	*2.1*	1	*.2*	142	*33.9*	204	*48.7*	15	*3.6*	48	*11.5*	419
1927	—	—	3	*.6*	53	*11.3*	201	*42.9*	132	*28.3*	79	*16.9*	468
1928	—	—	1	*.2*	66	*13.1*	248	*49.4*	137	*27.3*	50	*10.0*	502
II. From a Plantation Payroll[c]													
1913	24	*13.6*	101	*57.0*	34	*19.2*	18	*10.2*	—	—	—	—	177
1914	6	*4.3*	112	*80.0*	15	*10.7*	5	*3.6*	2	*1.4*	—	—	140
1915	30	*15.0*	121	*60.5*	27	*13.5*	14	*7.0*	8	*4.0*	—	—	200
1916	63	*21.0*	184	*61.3*	31	*10.3*	17	*5.7*	5	*1.7*	—	—	300
1917	56	*27.9*	100	*49.8*	29	*14.4*	12	*6.0*	4	*1.9*	—	—	201
1918	27	*14.3*	10	*5.3*	99	*52.4*	44	*23.3*	9	*4.7*	—	—	189
1919	40	*16.8*	10	*4.2*	72	*30.3*	103	*43.3*	12	*5.0*	1	*.4*	238
1920	—	—	4	*2.9*	3	*2.2*	15	*11.0*	88	*64.7*	26	*19.2*	136
1921	—	—	8	*5.6*	—	—	85	*59.0*	38	*26.4*	13	*9.0*	144
1922	29	*17.3*	22	*13.1*	92	*54.8*	19	*11.3*	4	*2.4*	2	*1.1*	168
1923	11	*7.0*	6	*3.8*	82	*51.9*	45	*28.5*	13	*8.2*	1	*.6*	158
1924	31	*12.7*	22	*9.0*	144	*59.0*	30	*12.3*	16	*6.6*	1	*.4*	244
1925	13	*6.8*	23	*12.1*	120	*63.2*	22	*11.6*	9	*4.7*	3	*1.6*	190
1926	13	*6.8*	24	*12.5*	132	*68.7*	17	*8.9*	5	*2.6*	1	*.5*	192
1927	16	*8.2*	23	*11.9*	119	*61.3*	26	*13.4*	8	*4.1*	2	*1.1*	194
1928	18	*9.0*	22	*11.0*	133	*66.5*	19	*9.5*	7	*3.5*	1	*.5*	200

[a] The payrolls indicated the number of boys and women employed, and these have been deducted from the respective classes and totals concerned.

[b] For comparison, see Chapter II, page 47.

[c] For comparison, see Chapter II, page 21.

island discharges mud cake directly into the ocean, instead of returning this valuable soil restorer to its fields.

Nevertheless, deep cultivation with steam plows and tractors and a liberal use of artificial fertilizers have done much of recent years to bring back some of Porto Rico's wasted soils. Fertilization costs appear not to have risen since 1923, though applications are heavier today than formerly, because fertilizer prices have suffered a substantial decline. But soil maintenance promises in the future to be a growing charge upon production.

Labor costs vary so much with weather, cane yields, and other fluctuating factors that it is impossible to make a close estimate of their trend. Moreover, the system of payment varies on different plantations. Some do all their field work on contract; others employ day labor exclusively. Both wages and contract rates vary in different sections of the Island. During the harvest, labor is sometimes brought from the extreme western to the extreme eastern end of Porto Rico, and returned at the end of the crop season, at the employer's expense.

Throughout the year, the average of wages for workers on mill payrolls tends to be higher than for plantation workers, but this is particularly true during the harvesting and grinding seasons. In the table on page 635 the trend of day wages for men working in the mills and on plantations is indicated. The data are from payrolls for the same mill and plantation for the month of April of the years 1913 to 1928, both years inclusive.

It will be seen from this table that the differential between mill- and plantation-wages during the grinding season existed before the war, but that it is even more clearly marked in the post-war period. That there should be such a differential is, of course, to be expected, for in the mill labor force are to be found many highly skilled workers who do not compete with plantation labor.

In the dead season for the mill the differential is less clearly marked. The table given below, also for 1913-1928, gives wage-rate data for the same mill and plantation for the month of November. It will be seen that, as compared with April, the mill force has been considerably reduced, although a comparatively large number of men are given some employment during the month. It will also be seen that a larger proportion of the force is to be found in the lower wage groups, many of those kept on the payroll being employed at unskilled tasks connected with putting the mill and yards into condition for the beginning of grinding operations in December.

WAGE RATES IN THE DEAD SEASON, 1913-1928 [a]
(Adult male day workers, by wage classes)
I. From a Mill Payroll [b]

November of Year Indicated	Under $.50		$.50–$.74		$.75–$.99		$1.00–$1.49		$1.50–$1.99		$2.00 or Over		Total Number on Payroll
	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	
1913	6	2.8	134	63.2	12	5.7	28	13.2	24	11.3	8	3.8	212
1914	17	7.9	131	60.7	23	10.6	17	7.9	21	9.7	7	3.2	216
1915	5	1.9	147	56.3	33	12.7	34	13.0	31	11.9	11	4.2	261
1916	6	2.0	198	66.0	40	13.4	21	7.0	28	9.3	7	2.3	300
1917	5	1.6	89	28.2	150	47.4	30	9.5	29	9.2	13	4.1	316
1918	1	.4	19	8.3	141	61.6	34	14.9	14	6.1	20	8.7	229
1919	3	.7	3	.7	205	45.2	171	37.7	22	4.9	49	10.8	453
1920	—	—	1	.2	1	.2	17	3.2	313	58.7	201	37.7	533
1921	—	—	4	1.2	93	27.4	168	49.6	23	6.8	51	15.0	339
1922	2	.6	64	18.1	152	43.0	74	21.0	19	5.4	42	11.9	353
1923	1	.3	3	.7	185	44.8	138	33.4	24	5.8	62	15.0	413
1924	—	—	5	1.3	178	46.1	126	32.6	23	6.0	54	14.0	386
1925	—	—	3	1.0	126	41.6	116	38.3	16	5.3	42	13.8	303
1926	1	.3	1	.3	162	44.2	135	36.9	17	4.6	50	13.7	366
1927	—	—	4	.8	223	46.2	163	33.8	33	6.8	60	12.4	483
1928	—	—	5	1.0	229	47.8	157	32.8	37	7.7	51	10.7	479

II. From a Plantation Payroll [c]

November of Year Indicated	Under $.50		$.50–$.74		$.75–$.99		$1.00–$1.49		$1.50–$1.99		$2.00 or Over		Total Number on Payroll
	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	Number	*Per Cent of Total*	
1913	3	2.6	98	83.7	7	6.0	7	6.0	2	1.7	—	—	117
1914	15	9.4	129	80.6	8	5.0	4	2.5	4	2.5	—	—	160
1915	27	10.2	217	81.9	12	4.5	5	1.9	3	1.1	1	.4	265
1916	29	15.8	129	70.1	15	8.1	9	4.9	2	1.1	—	—	184
1917	15	8.8	69	40.6	74	43.5	8	4.7	4	2.4	—	—	170
1918	12	9.8	2	1.6	88	71.6	18	14.6	3	2.4	—	—	123
1919	6	4.0	13	8.8	58	39.2	66	44.6	5	3.4	—	—	148
1920	—	—	1	.3	13	4.5	14	4.9	235	81.3	26	9.0	289
1921	9	6.9	—	—	104	80.0	11	8.5	5	3.8	1	.8	130
1922	19	10.2	125	66.9	33	17.6	7	3.7	2	1.1	1	.5	187
1923	5	2.9	23	13.1	128	73.2	14	8.0	2	1.1	3	1.7	175
1924	8	3.6	9	4.1	183	82.1	21	9.4	1	.4	1	.4	223
1925	9	4.4	7	3.4	174	85.3	11	5.4	2	1.0	1	.5	204
1926	15	8.3	6	3.3	146	80.2	11	6.0	1	.5	3	1.7	182
1927	15	7.2	12	5.8	167	80.7	11	5.3	1	.5	1	.5	207
1928	5	3.7	7	5.2	113	84.3	8	6.0	—	—	1	.8	134

[a] The payrolls indicate the number of boys and women employed, and these have been deducted from the respective classes and totals concerned.

[b] For comparison, see Chapter II, page 47.

[c] For comparison, see Chapter II, page 21. The dead season payroll for plantation workers paid daily wages is sometimes larger than the same payroll for the grinding season, because during the latter a larger fraction of the normal field force may be cutting and loading cane on contract.

The plantation wage rates given here and on page 635 do not include cane cutters and loaders, who are paid by the ton, frequently work long hours, and earn considerably more per day than wage hands. Consequently, the total number employed in April and November of each year as here reported does not measure the true fluctuation of the plantation force between the dead and the grinding seasons. During 1927-28 the total monthly payroll of an important plantation group varied as follows:

August	7,795	December	9,466	April	10,772
September	7,758	January	9,678	May	9,985
October	7,511	February	9,464	June	10,251
November	7,382	March	9,827	July	8,360

The rates given above are for daily workers and would be increased materially if they included the average daily earnings of *ajuste* or contract workers. Rates per acre for such work vary in harmony with daily rates, as the following examples, taken from identical plantation records show:

Type of Work	1915	1920[26]	1928
Plowing	$2.07	$4.08	$2.25
Harrowing	.50	.95	.50
Planting	2.24	6.87	3.00
Weeding	.79	5.18	1.71

The table below gives more comprehensive data on plantation wage rates. Comparison is here made between the years 1914 and 1929. The data given do not cover identical periods for the two years, however, those for 1914 being for the year as a whole, while those for 1929 are for the grinding season

Comparative Wage Data for Plantation Workers, 1914 and 1929
(Data for a number of plantations combined)

Day Rates (In dollars)	1914[a]		1929[b]	
	Number of Workers	*Percentage Distribution*	Number of Workers	*Percentage Distribution*
Less than .50	101	*8.3*	77	*.9*
.50- .74	526	*43.4*	1,149	*13.9*
.75- .99	380	*31.4*	3,473	*41.9*
1.00-1.49	100	*8.3*	3,141	*37.9*
1.50-1.99	42	*3.5*	418	*5.1*
2.00 or over	62	*5.1*	26	*.3*
All wage groups	1,211	*100.0*	8,284	*100.0*

[a] Department of Commerce, Miscellaneous Series No. 53, *Cane Sugar Industry*, p. 287.

[b] Porto Rican Department of Labor wage schedules.

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[26] Maximum for war and post-war period.

only. For both years, the figures cover a wide range of workers—from common field laborers to overseers, field inspectors, and surveyors. It was not possible here to exclude boys employed on the plantations, but women workers have been excluded from the figures.

These more comprehensive figures indicate that in 1914 nearly one-half of the workers on this group of plantations were paid less than 75 cents a day and more than four-fifths received less than $1.00. Fifteen years later the daily wage of 56 per cent of the workers reported was less than $1.00, but the going wage exceeded 75 cents; while over one-third of those employed received between $1.00 and $1.49 a day.

The following table gives a similar comparison for mill wages. Here again it will be seen that the periods covered for the two years are not identical. The types of work included in the two sets of data are, however, roughly comparable.

COMPARATIVE WAGE DATA FOR MILL WORKERS, 1914 AND 1929
(Data for a number of centrals combined.)

Day Rates (In dollars)	1914 [a]		1929 [b]	
	Number of Workers	*Percentage Distribution*	Number of Workers	*Percentage Distribution*
Less than .50	39	*1.8*	—	—
.50- .74	700	*33.1*	198	*5.7*
.75- .99	500	*23.7*	779	*22.4*
1.00-1.49	597	*28.3*	1,411	*40.5*
1.50-1.99	136	*6.4*	707	*20.3*
2.00 or over	141	*6.7*	386	*11.1*
All wage groups	2,113	*100.0*	3,481	*100.0*

[a] Department of Commerce, Miscellaneous Series No. 53, *Cane Sugar Industry*, pp. 288-289.

[b] Porto Rican Bureau of Labor schedules.

Wages vary in different sections of the Island, being higher as a rule in the eastern than in the western section, and on the larger than on the smaller plantations. During the crop season 1928-29 the modal or running wage of day hands engaged in field work ranged from 60 cents a day on a small plantation in a coffee growing district to one dollar a day on some of the larger coastal estates.

From the evidence presented here it would seem that labor costs per ton of cane, per ton of sugar, and per acre cultivated are probably declining because wages have remained at about the same level since the post-war deflation,[27] while increased cane yields and improved machinery in both field and factory have enabled planters to secure a larger return per worker. On one plantation the field payroll per acre of *gran cultura* cane was $142.99 in 1928 as compared with $148.50 in 1923. Another establishment reported the labor cost in its mill during the grinding season at $1.22 per ton of sugar in 1923 and $1.14 five years later; while the number of days worked per ton of sugar manufactured in still another mill declined from 1.72 in 1923 to 1.16 in 1928. But the quality of the cane ground and the size of a crop, both of which vary from season to season, influence mill costs; while the relative areas under *gran cultura, primavera,* and ratoon cane in different years, and even annual variations of rainfall—which affect expenditures for weeding and cultivation—similarly influence field expenses.

In contrast to strictly payroll items, such charges entering into labor costs as expenditures for better housing, hospitals and other forms of workers' welfare tend to increase. These expenditures are not universal, however, and are relatively greater, as a rule, on the larger and more prosperous plantations than on their smaller neighbors. Company stores, which in some instances, operate in chains and do a business of between $500,000 and $1,000,000 annually, are not in this category because they pay a profit; but their earnings in proportion to their turnover are reported to be lower than those of ordinary commercial establishments.

In 1914, labor costs for comparable operations were relatively lower in Porto Rico than in either Cuba or Hawaii. For example, harvesting cane, the operation where this item forms the highest percentage of the total, cost in Hawaii between $36 and $38 an acre or 75 cents to $1.05 a ton, in Cuba, $24.53 an acre or $1.13 a ton; in Porto Rico $16.05 an acre or 69 cents a ton.[28] Similar comparisons of cultivation costs can not be made, because the varying proportions of colono or homestead cane in these three countries respectively make such computations largely conjectural. In 1915, the last year for which comparable figures are obtainable, the average daily earnings of 24,593 field hands and contract cultivators in Hawaii were 97 cents; while in Porto Rico the average wage of 225 field laborers engaged in planting and cultivation was 63 cents, and that of 292 cane cutters was 70 cents.[29]

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[27] The shift in wages from lower to higher brackets, which began in 1918 and culminated in 1920, is most clearly indicated by the table on page 635, showing wage rates in the month of April over a series of years. It will be seen that while the post war decline has carried wages well below the 1920 peak, they are still at a higher level than in the pre-war period. When increases in the general price level are taken into account, however, the indications are that there is practically no change in "real" wages or in labor costs.

[28] *The Cane Sugar Industry*, pp. 42, 59.

VI. PROFITS

Even measured by the liberal returns usually anticipated from highly capitalized agriculture in the tropics, the sugar industry of Porto Rico has in the main been very prosperous. Approximately 60 million dollars are invested in sugar plantations operating mills in that Island. To this must be added a very considerable sum represented by colono estates some of which equal those of the centrals in magnitude. Thirty-six corporations and partnerships in this industry, with a net investment between 56 million dollars and 57 million dollars, earned in 1927 net profits after paying taxes of over 5.3 million dollars, or slightly more than 9 per cent upon their physical valuation. Many companies declared stock dividends of 100

FINANCIAL DATA FOR THREE LARGEST SUGAR PRODUCERS
(Dollar items are in thousands.)

Companies	1922	1923	1924	1925	1926	1927
Central Aguirre Company:						
Capital	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,600	$ 3,600
Assets	11,194	11,916	11,757	12,240	13,555	13,917
Earnings[a]	752	2,398	1,048	1,459	1,063	2,492
Earnings as percentage of capital	*25.1*	*79.9*	*34.9*	*48.6*	*29.5*	*69.2*
Earnings as percentage of assets	*6.7*	*24.7*	*8.9*	*11.9*	*7.8*	*17.9*
Fajardo Sugar Company of Porto Rico:						
Capital	$ 5,760	$ 5,760	$ 5,760	$ 5,760	$ 6,478	$ 6,478
Assets	8,364	9,003	8,991	9,310	11,790	12,028
Earnings[a]	272	1,120	1,345	1,303	582	902
Earnings as percentage of capital	*4.7*	*19.4*	*23.3*	*22.6*	*10.1*	*15.7*
Earnings as percentage of assets	*3.3*	*12.4*	*15.0*	*14.0*	*4.9*	*7.5*
South Porto Rico Sugar Company of Porto Rico:[b]						
Capital	$16,206	$16,206	$16,206	$16,206	$16,206	$22,873
Assets	25,929	28,026	29,410	31,259	32,353	40,033
Earnings[a]	870	2,003	1,737	1,914	1,662	1,845
Earnings as percentage of capital	*5.4*	*12.4*	*10.7*	*11.8*	*10.3*	*8.1*
Earnings as percentage of assets	*3.4*	*7.1*	*5.9*	*6.1*	*5.1*	*4.6*

[a] Net earnings after deducting interest and depreciation.
[b] This includes the company's Santo Domingo undertakings.

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[29] *Ibid.*, pp. 63, 65-68, 230.

per cent and more during the high price era accompanying and following the war, and subsequent conversion of par value shares into non-par value shares has further modified the financial structure of these corporations. Notwithstanding such increases in nominal capitalization, dividend percentages still bear little relation to the present worth of the properties concerned, since a large share of the revenues from these properties has been used to extend their acreage and improve their factories and railways, and all of them have profited by the rise in land values. This is illustrated by the above figures from the annual reports of the three largest producers in the Island, although the ratio of assets to earnings is affected in some degree by differences in their capital structure.

Two neighboring plantations of approximately equal size and general character earned respectively for the 1927-28 crop, 17.1 and 6.2 per cent upon the par value of their stock and 8.2 per cent and 4.5 per cent upon their assets.

Enormous profits were realized during the War and the ensuing period of high prices, in spite of the great rise in wages and other production costs that accompanied that event.

New York Prices of 96-Degree Sugar Per Ton of 2,000 Pounds

Year	Minimum	Maximum	Average
1913 [a]	$64.60	$75.20	$70.12
1914	58.40	130.40	95.66
1915	72.80	100.40	92.84
1916	90.30	133.00	115.72
1917	96.80	150.40	124.56
1918	120.10	145.60	128.94
1919	145.60	271.00	154.48
1920	92.60	471.40	246.52
1921 [b]	68.40	125.40	95.26
1922 [c]	68.40	115.60	92.64
1923	100.40	168.20	140.40
1924	91.80	148.20	119.28
1925	74.20	96.80	86.68
1926	79.20	103.00	86.74
1927	89.20	105.40	94.60
1928	75.40	93.00	84.58
1929	.....	.....	71.58 [d]

[a] Duty on Cuban sugar reduced from 1.348 cents a pound to 1.0048 cents, effective March 1, 1914. Philippine sugar admitted free.

[b] Duty on Cuban sugar increased to 1.6 cents a pound.

[c] Duty on Cuban sugar increased to 1.7648 cents a pound.

[d] Average for Porto Rican sugar for month of May.

The following table, showing the price range and the average price of raw sugar in the New York market from 1913 to 1928, emphasizes the precarious character of this abnormal prosperity. The fall of average prices during the last month of 1929 for which we have data to nearly their level in 1913, despite the maintenance of higher production costs, suggests the critical condition in which the industry finds itself at the moment of writing.

VII. GENERAL ORGANIZATION

Nearly half of the sugar manufactured in Porto Rico is produced by four large American corporations operating eleven mills. These companies embrace several subsidiaries. The largest, the South Porto Rico Sugar Company, has an authorized capital, including nearly 18 million dollars of common stock without par value, of more than 25 million dollars and assets exceeding 40 million dollars. It is solely a holding company whose only activities are to make advances and procure credits for its various subsidiaries and to collect and pay interest and dividends. It owns the capital stock and bonds of two centrals which in turn own approximately 150,000 acres of land in Santo Domingo, and of the South Porto Rico Sugar Company of Porto Rico, a distinct corporation which owns and operates the largest central in Porto Rico itself together with its subsidiary railways, wharves, and warehouses. In addition, the holding company owns all the capital stock of the Dominican Steamship Company and of the South Porto Rico Sugar Company Corporation which handles the sale of sugar and other products of its centrals and purchases supplies for the operating companies. Last of all, it has contract relations with Russell and Company, a limited partnership owning or leasing over 50,000 acres, the profits of which are distributable to the owners of the common stock of the holding company through a trustee. In its three mills this company grinds daily during the harvest season between 15,000 and 20,000 tons of cane and all its establishments when running to capacity manufacture well towards a quarter million tons of sugar annually. This is the only enterprise importing cane into Porto Rico for manufacture, which it does to the extent of 1,600 tons daily during the height of the crop season. It employs for this service chartered vessels handled through its own subsidiary corporation and running between its own wharves in Santo Domingo and Porto Rico. Another American corporation transports cane by barges from the neighboring island of Vieques to a central lying near the eastern coast of Porto Rico. This practice of bringing cane from other islands shows no present promise of expanding, as import duties on foreign cane and deterioration in transit render it profitable only under exceptionally favorable conditions.

The Central Aguirre Sugar Company with its three subsidiary organizations, two of which own and operate centrals separate from the factory of the principal company, has assets exceeding $15,000,000 and manufactures over 102,000 tons of sugar annually. This corporation controls, through Luce and Company, a limited partnership of directors of the parent concern, about 22,000 acres of fee simple land and 15,000 acres of leased land. It also owns the entire capital stock of the Ponce and Guayama Railroad Company.

A third large corporation is the Fajardo Sugar Company of Porto Rico which controls the Fajardo Sugar Growers Association, a partnership owning extensive agricultural holdings, and the Fajardo Development Company which owns and operates over 80 miles of railroad and a telephone system. This company owns a second central and its tributary cane lands, and in its two factories manufactures over 75,000 tons of sugar annually.

The youngest of these four corporations has acquired five sugar mills in the central and eastern sections of the Island together with 26,000 acres of land, including holdings in the adjacent island of Vieques, and 120 miles of railroad. Its assets are appraised at more than $11,000,000 and in normal years its mills make some 65,000 tons of sugar.

Mainland capital is interested in other plantation enterprises in Porto Rico, but a majority of the remainder are owned and managed by Islanders or Spaniards. Some very large properties are held by partnerships, largely to avoid conflict with the 500-acre law restricting corporate ownership of agricultural land. A number of little mills survive in the upland regions, grinding from 100 to 200 tons of cane a day, making from 600 to 2,000 tons of sugar annually. Most of these small establishments, as well as some of the larger concerns, though owned nominally by corporations, are the property of families or of closely associated groups of neighboring landowners.

So many of the economies of quantity production can be realized in this industry that the present trend toward concentration, which is common to all sugar producing countries, seems likely to continue. Probably most of the sugar made in

Porto Rico will eventually be manufactured in five or six large establishments, served by the belt line railroad which already partially encircles the Island, and which is largely controlled by planting interests. Small mills may survive, however, to grind the cane of isolated tracts in districts where transportation to a large central even by trucks and improved highways would be unduly expensive. It costs $2 a ton to carry sugar from a little factory situated near the geographical center of the Island over a mountain range to the wharves at Ponce. Colonos whose farms are comparatively near certain of the large centrals pay three cents a hundredweight, which is equivalent to about $6 a ton of sugar, to have their cane trucked to the mill. Moreover, the great centrals may not find it to their interest to monopolize the cane lands of their tributary territory. So far as such lands form continuous level tracts, which require extensive irrigation or drainage for profitable exploitation and can be cultivated by steam plows and tractors, they will naturally fall under unified control. But the amount of land of this character in Porto Rico is limited. A marginal belt exists where cane is now planted and may be planted more generally in the future as a result of economies due to improved tillage and scientific seed selection, where small growers may continue to thrive. Porto Rico differs from Cuba or Hawaii in that the greater part of its area is topographically unfavorable for large-scale cultivation. Even in the level country boundaries between land under different ownership still run athwart tracts which might be more efficiently cultivated as a single unit, and the historical subdivision of the soil impedes large-scale steam plow and tractor cultivation.

VIII. CONCLUSION

Conditions may eventually arise which will lead to the substitution of another crop for sugar cane in Porto Rico. It is safe to predict, however, that any agricultural industry that thrives in these subtropical lowlands under modern conditions of production will be conducted on a large scale and will be highly capitalized.

While the relative social profit—that is, benefit to Porto Rico's farming population as a whole—of cane growing as compared with other forms of agriculture is too debatable to justify dogmatic assertion, the present crop distribution probably consults the general welfare better than any other of which we have experimental knowledge. Of the $60 to $80 per ton which it costs to make sugar in Porto Rico, nearly three-fifths is paid out in wages and salaries. On account of the presence of the colono system, the practice of ratoonage, and other variable factors, it is difficult to fix this figure with precision. Data supplied by the representatives of 18 centrals making over half a million tons of sugar annually, indicate that the ratio of wages and salaries to total cost of production, weighted on a tonnage basis, is 57.9 per cent. This may be slightly below a true average because the companies reporting are preponderantly large producers in the most fertile sections of the Island where labor costs as a rule are lowest. They do not include expenditures for housing workers and for medical and other welfare objects. Assuming that the average cost of producing a ton of sugar is $70, which is lower than current estimates, probably $40 a ton represents wages and salaries. On a normal crop this amounts to $30,000,000. Porto Rico's cane plantations and sugar mills probably give employment to about 90,000 people. This is well toward twice as many as are employed in Hawaii to produce a much larger crop, but the estimate seems justified by the following figures:

	1909-1910	1919-1920	1927-1928
Acres of cane grown (Census)	145,433	227,815	....
Acres of cane land (Assessment Rolls)	178,984	240,151	237,436
Tons of sugar made	347,000	485,000	751,000
Number employed in sugar industry (Census)	87,643	84,837	90,000[30]

During the last twenty years improved organization and the introduction of labor-saving machinery in both field and factory have reduced the number of employees relatively to the extent of cane under cultivation and the quantity of sugar made. Probably the average income of cane field and factory workers taken as a group exceeds $300 per annum,[31] although on account of seasonal variations in the payroll all do not actually receive this amount and the labor wages per acre cultivated, including plantation railroad and mill hands as well as field workers, is more than $125. This estimate disregards capital returns, a large share of which remain in the Island in the form of land rents, interest, and dividends paid to resident owners; as well as employment afforded by subsidiary industries which might serve any other type of agricultural production. What holds true of the neighboring British Islands, with a minimum of tariff advantage in Empire markets, is still more true of Porto Rico with far higher protection in the mainland market,—"The sugar industry . . . provides more employment per acre and more revenue per acre than any other crop."[32] Though approximate only within liberal limits, therefore, this estimate justifies the assumption that, so far as cane planting goes, the existing agricultural economy of the Island is rational and serves the needs of its people as well as any other of which we have present knowledge.

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[30] Estimated.

[31] Before the war increased nominal wages adult field hands, who are the lowest paid but most numerous group of workers in this industry, were estimated to earn when fully employed $215 per annum. *The Cane Sugar Industry*, p. 64.

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[32] Report by the Honourable E. F. L. Wood, M. P., Parliamentary Under Secretary of State for the Colonies, in his *Visit to the West Indies and British Guiana*, London, 1922, p. 49.

APPENDIX F

GENERAL SURVEY OF A FARM: "LA ESPERANZA"

By JOSÉ LARACUENTE[1]

About six kilometers from Mayagüez, along the road from this town to Maricao, on the left side going from Mayagüez, one can see a big gate with a big sign that reads *"Finca La Esperanza."*

This estate belonged to a Spaniard who sold it to a partnership when he sailed for Spain in the year 1922. Subsequently it belonged to Mari and Laracuente, each of the partners having one-half interest in the farm. The Spaniard who was the previous owner was in a desperate situation for a time because he had to sell his coffee to a particular firm to which he was indebted, no matter how much better price he could have obtained in any other place or from any other buyer. But after the firm had had a good many crops the owner paid the debt and was enjoying an independent position. When Laracuente and Mari bought the farm they paid $30,000, which amount was paid $10,000 cash and a 4 per cent mortgage for the rest for five years. This amount has already been paid.

The original estate comprised 300 acres, most of which was devoted to sugar cane and coffee. Today the farm is composed of 450 acres and most of it is devoted to coffee plantation. The last 150 acres were obtained through the purchase of another small farm located on the north side of the Esperanza. This small farm was wholly devoted to coffee of the best quality, namely, "Caracolillo." Laracuente and Mari, seeing the great advantage of adding this farm to their property, felt justified in paying $12,000 for it. During the war, when the price of sugar cane had risen to the top price of $30 a ton, most of the original estate was planted in sugar cane. The cane output was of an average of 40 tons per acre, taking into consideration the tracts of land which were cultivated for the first time and those which had borne two or more crops. With the sudden drop in the price of sugar, the Spanish owner had to face a difficult situation. So he decided to sail for Spain and sold the farm to the subsequent owners. I think that for the better understanding of the circumstances which have determined the improvements in the farm, it should be advisable for me to say that Mr. Mari, one of the partners, is a graduate of an agricultural college. This fact qualifies him to direct the cultivation of the farm.

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[1] This is a study submitted by a student, practically familiar with the operations of the farm in question, as a class requirement in the School of Business Administration at the University of Porto Rico.

Due to the fact that sugar cane had dropped from the maximum price of $30 to about $4, the partners began to give more attention to the cultivation of coffee. Out of the total number of acres (450) only 200 were under coffee cultivation at the beginning. The balance of 250 acres was under sugar cane. These, I should say, were the most important products of the farm and perhaps the only ones of any consideration. It is true that some bananas, oranges, and some minor fruits were grown, but they yielded crops without any care. The production of these fruits was so small that it was all used for the home consumption.

Mr. Mari, who is a very active and shrewd man, began at once to plant coffee trees where sugar cane had grown for many years. Within two years the sugar cane acreage had decreased to about 25 acres, while the coffee acreage had increased from 200 acres to 375 acres. The farm was thus divided as follows:

Sugar cane	25	acres
Coffee	375	”
Devoted to the cultivation of grass for the feeding of the horses and mules	17	“
Cultivation of vegetables	33	“

Most of the 375 acres of coffee are planted in trees producing the best quality. The old trees have been cut down, and new ones planted, so that at present most of the acreage is in new trees. This means that the coffee production has increased more than 50 per cent. We also find extensive plantations of bananas mixed with the coffee plantations. These banana plants, together with the oranges, are planted to give shade to coffee trees. At present the output of bananas and oranges is so great that the farm can supply the local market at Mayagüez and still ship part of the production to San Juan. The coffee is mostly sent to the United States and to Spain. The coffee production for the year 1926-27, which was the last crop before the great hurricane and one of the worst for the farm, was 40,000 pounds, and was sold at 20¼ cents a pound. The sugar cane acreage, now decreased to 25 acres, is totally planted with "rayada," a species of sugar cane that produces a very sweet juice. This sugar cane is not sold to the *centrals.* It is made into molasses at home, and the molasses is sold to the local market at Mayagüez.

Vegetables occupy 33 acres, divided among tomatoes, lettuce, cabbages, beets, beans, and other crops. This section of the farm is the one that needs the greatest care and where the most expenses are incurred relative to its size. The production of this section is partly sold at the farm to vegetable dealers, called *revendedores,* who come to the farm every afternoon. The rest is sold to the local market. The farm rents a stall at the local market, where it disposes of the oranges, bananas, and the vegetables not sold to local dealers. The prices quoted by the dealers at the market are those that the farm quotes there to the prospective buyers. The local dealers are financed by the farm. They buy on weekly credit.

The general equipment of the farm consists of two big residences with all modern conveniences, such as water, sanitary plumbing, and Delco lights; 42 small houses for the laborers *(peones)*; one residence for the "mayordomo," or foreman; one big storeroom for the coffee; three machines for pulping coffee; one small sugar mill, called a "trapiche," where the sugar cane is ground for making molasses; four auto trucks and two automobiles; 27 mules and 9 horses. (The number of horses and mules is decreasing due to the fact that their work is now performed by the trucks and other machines.)

The labor force is made up of men, women and children, who live on the farm. They are approximately 64 in number, counting all three divisions. The men work at tilling the fields and cleaning the coffee plantation. The women and the children work at the time of harvesting, picking coffee. I have not included in this total the men who drive the cars and trucks and those who work at the machines, or those who work at special jobs. The total already mentioned is the constant labor force of the farm.

Up to 1917 there was no good road to the farm. The only means of communication was a muddy country road, over which ox carts and mules could pass. The cost of transportation was exceedingly high, ranging from 40 to 50 cents a hundredweight, regardless of distance, with an additional charge for articles of great weight or volume. Even passengers faced inconveniences on this road. They used mules and horses, and even had to ride in ox carts. By 1919, the road was improved by the government so that at present we have one of the best highways in the Island. Where one could see long caravans of mules and horses he now can see big processions of trucks, autos, and once in a while trains of mules and horses loaded with bags of coffee, bound from the country to the town. The cost of transportation of farm products to town was formerly so expensive that it accounts for the lack of cultivation of minor crops. It was necessary to keep about 60 horses and mules on this plantation to do the job. Now four trucks can do the work at about one-sixth of the original cost of transportation, or in either direction for two to four cents a hundredweight. Under present conditions, fresh eggs and vegetables are carried to town every day and the news of the civilized world reaches the farm with marvelous rapidity. The passenger fare from the farm to the town or vice versa is 25 cents, while in 1918 it was about $2.50, and even then the service was uncertain. These modern transportation facilities have had another effect on the farm, namely, that now there is a continuous flow of workmen to the farm, thus increasing the supply of laborers and reducing the cost of cultivation. Due to this fact the farm can pay lower wages now, thus saving part of the income that had to go to the laborers.

The weekly payroll during the time of the harvest is made up of children's, women's and men's wages. The payroll during the rest of the year is mostly made up of men's wages. The amount of the weekly payroll is $86.50, paid to the men who have steady work during the year and to five women and five children. But at time of harvest, the wages of the men are doubled, due to the fact that they do piece work. That is, they are paid 20 cents a bushel for picking coffee in the cherry. Many of these laborers pick an average of five bushels of coffee a day. The rest of the labor force is made up of children and women, who likewise get paid according to the number of bushels of coffee they pick. They receive the same rate as the men—20 cents a bushel. The average number of bushels picked per day by children and women is three. When the harvesting season is over, the children and women work in the vegetable fields. Then they get 25 cents for a day's work for children and 40 cents for women. The men work for the rest of the year in the coffee fields, sugar fields, and in the sugar mill. Besides the regular wages the laborers receive a share of bananas, oranges, and even vegetables every day. Also they are allowed to plant small gardens for themselves, from which they get most of their food. They are also given credit by order of the owners of 25 cents every day with which they can buy such commodities as codfish, lard, cigars, matches, candles, and the like at a general country store owned by Juan Rosas about two kilometers from the farm. The farm pays every week for what the laborers get at the store and charges it to the laborers' accounts. The length of time the employees work when it is by the day is nine hours for men and seven hours for children and women. There is no limit of time when they work by the piece. The scale of regular wages is:

Men (day's wage)	50 to 60 cents
Women (day's wage)	40 to 50 cents
Children (day's wage)	25 to 35 cents
Chauffeurs (week's salary)	$10.00
Foreman (week's salary)	$12.00

As coffee represents the most important product of the farm, I will trace the channel of distribution from its very beginning, that is, from picking to storage and sale. I shall do this because there are places in Porto Rico where coffee, after it has been pulped, dried, and cleaned, is sold to the customers by the farmer.

(1) The coffee is picked from the trees and brought to the barn on horseback or in small carts, where the coffee gathered during the day is temporarily deposited.

(2) The next day this coffee is taken to a machine where the soft pulp is removed, leaving the barn empty for that day's new picking. Every day the amount of coffee gathered the day before is treated in the same manner to avoid the product being spoiled, for if left in the barn longer it deteriorates and brings a lower price. The coffee is next placed in the sunshine to dry for nine days, after which it is taken to a machine where the second harder shell, or parchment, is removed, leaving the coffee beans of a white-like color. Sometimes the farmer sells part of this coffee to retailers without its being classified.

(3) After the coffee has gone through this machine, it is sorted in another machine into first, second, and sometimes even third class.

(4) Then it is placed in sacks and taken to town in trucks, cars, or by mules, and in a few cases by railroad.

(5) In the town the coffee is either sold to a wholesaler, or put in storage by the farmer. This generally depends on whether the farmer is pressed for money.

(6) In any case the coffee is stored, either by the wholesaler or by the farmer himself. Part of it is sold to local

retailers and the other part is shipped to the United States and Spain. Spain and the rest of Europe offers a very good market for Porto Rican coffee, due to the fact that it is a high quality shipped under an attractive name. If the product is sold to a wholesaler in the United States, he has to pay storage and insurance.

(7) The coffee exported goes by steamers to the points of ultimate sale. It is either sold to wholesalers or sent to coffee brokers, who sell it on a commission basis. When the product is shipped, it is insured. If it is sold to wholesalers, it is paid for by drafts, collected through the Porto Rican banks. The same thing applies to the brokers. They deduct their commission and return the net proceeds to the Porto Rican wholesalers.

(8) Once in the hands of the broker, the broker goes around with samples to wholesalers, and even to retailers, and offers the product. In case the coffee is in the hands of the wholesalers, they have their salesmen who take samples to retailers. Sometimes the broker or wholesaler sells the coffee to another wholesaler.

(9) When the product is in the hands of the retailer, taken to him either through the trains, trucks, or even steamers, he displays it in his store, to which the consumers come and buy the coffee. Sometimes the same retailer toasts and even grinds the coffee and sells it ready for consumption. Otherwise the coffee is sold to special firms whose business is to sell the coffee toasted and ground. In the United States the restaurants and hotels often buy their supply of coffee from the wholesalers.

APPENDIX G

FARM MANAGEMENT: COFFEE

The coffee groves are in the high country near the center of the Island.[1] The trees are kept clean of woods, grass, vines, and other undergrowth, but receive little or no actual cultivation. They can be successfully grown on exceedingly steep mountain sides, where laborers are compelled to hold on with one hand while they work with the other. The altitude, however, does affect the growth of coffee, and it is not successful much above 2,500 feet.

The municipalities of Adjuntas, Lares, and Yauco were selected as representatives of the coffee district in which to make a detailed study. Records for 127 farms were secured by the survey method. These records give the details of operations and the financial returns for each farm for the calendar year ending December 31, 1928.

Coffee growing has long been the most important industry in this district, but within recent years the acreage has declined in Adjuntas and Yauco. Some land formerly in coffee in Adjuntas is now in tobacco, while in Yauco some land formerly in coffee is now in sugar cane and tobacco. Coffee still holds its own fairly well in Lares. According to the census of 1920 the value per farm of principal crops in these three municipalities in 1919 was as follows:[2]

Crops	Adjuntas	Lares	Yauco
Cereals	$9	$36	$35
Coffee	880	959	396
Other grains and seeds	16	58	19
Hay and forage	16	28	6
Tobacco	6	4	47
Sugar cane	.28	35	300
Vegetables	20	148	17
Tropical fruits and nuts	413	176	62
All other crops	1	.11	2
All crops	$1,361	$1,444	$884

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[1] In 1919 the land in coffee totaled 193,561 acres, or about 29 per cent of the area in the principal crops.

[2] *Fourteenth Census*, Vol. 1, Part 3, pp. 392-99 and 408-15.

The value of coffee, and fruits and nuts, which are largely intercropped with coffee, forms 95 per cent of the income in Adjuntas, about 80 per cent of the income in Lares, and a little more than 50 per cent of the income in Yauco. The coffee area in Yauco, however, is quite definitely separated from the tobacco and sugarcane areas. The records obtained in this study were taken only in the region where coffee predominated.

Very little is known about yields per acre of coffee over a period of years. The only authentic data are the census figures, and these are only for single crops at ten-year intervals. In each municipality a number of farmers were found who had kept per acre yield records over a period of years. Apparently, there was little change in the yield per acre up to about 1924. Since 1924 the yield per acre has been very irregular on account of storm damages.

The three municipalities studied rank somewhat above the average in the adaptability of soil and climate to coffee and in yields per acre. There are small areas in other municipalities where conditions are equally favorable; but as representing the coffee district as a whole, the three municipalities studied are somewhat above the average.

I. FARM ORGANIZATION

On the basis of income, the 127 farms studied may be classified as follows: Ninety-nine all-coffee farms, 24 tobacco and coffee farms, two coffee, tobacco, and food crop farms, two coffee, tobacco and livestock farms.

The 99 all-coffee farms are farms on which on an average nearly 80 per cent of the land in crops is in coffee, and 80 per cent of the income is from coffee. In total area they vary from 15 acres to 1,500 acres. Classified according to the number of acres devoted to coffee,[3] the number of these farms is as follows:

Acres in Coffee	Number of Farms
20 or less	18
21–40	16
41–80	16
81–100	10
101–140	11
141–180	12
181–300	7
Over 300	9

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[3] Data were recorded in complete acres—with fractions rounded off. The reader should notice that the use of unequal class intervals precludes certain comparisons that might otherwise be made of the data presented in this appendix.

AVERAGE ACREAGE IN INDICATED CROPS ON FARMS WITH SPECIFIED COFFEE ACREAGE

I. Coffee Farms

Crop	20 Acres or Less	21–40 Acres	41–80 Acres	81–100 Acres	101–140 Acres	141–180 Acres	181–300 Acres	Over 300 Acres
PRINCIPAL CASH CROPS	**15.8**	**31.8**	**67.7**	**99.4**	**123.4**	**156.9**	**239.4**	**498.9**
Coffee	15.5	31.0	67.6	98.0	123.4	156.7	238.0	490.6
Tobacco	.3	.8	.1	1.4	...	.2	1.4	6.1
Cane	...	...	...	...	...	...	...	2.2
FOOD CROPS SOLD	**7.3**	**14.1**	**19.1**	**26.7**	**17.3**	**30.7**	**34.5**	**83.3**
Yautías	1.3	1.7	2.0	1.6	1.1	4.4	1.3	6.1
Bananas not in coffee	2.0	6.9	6.8	7.4	3.3	13.9	15.1	34.4
Sweet potatoes	.4	1.0	.3	.2	1.1	1.4	.1	.7
Irish potatoes	...	.1	.2	...	.3	...	.1	.2
Beans	1.1	1.2	3.2	1.2	2.8	3.9	1.8	13.8
Citrus fruits	...	...	...	...	...	...	...	3.9
Plátanos	.9	1.2	1.9	3.6	6.3	3.2	3.1	14.7
Corn	1.1	1.8	2.9	1.8	2.5	4.0	1.8	5.2
Other crops	.4	.2	1.8	11.0	...	...	11.0	4.4
Acres Double Cropped[a]	*1.8*	*1.4*	*3.3*	*14.8*	*2.9*	*5.1*	*21.3*	*10.2*
PASTURE	**5.9**	**8.3**	**18.4**	**34.6**	**29.4**	**21.6**	**60.3**	**75.0**
WASTE LAND	**10.9**	**13.7**	**54.9**	**67.3**	**35.2**	**113.8**	**139.1**	**201.3**
TOTAL Acreage of Average Farm	**38.1**	**66.5**	**156.8**	**213.2**	**202.4**	**317.9**	**452.0**	**848.3**

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[a] Since the acreage double-cropped has, in each case, been included in the figures for two separate crops, it must be treated as a minus quantity in calculating the "total acreage of the average farm" for each size group.

II. Coffee-Tobacco Farms

Crop	20 Acres or Less	21–40 Acres	41–80 Acres	81–140 Acres	Over 140 Acres
PRINCIPAL CASH CROPS	**21.0**	**34.7**	**85.9**	**125.5**	**397.8**
Coffee	15.3	29.1	66.8	110.5	381.0
Tobacco	5.7	5.6	17.8	14.0	16.8
Cane	....	....	1.2	1.0	....
FOOD CROPS SOLD	**19.0**	**25.1**	**61.1**	**61.1**	**70.0**
Yautías	1.0	2.0	3.7	8.8	.2
Bananas not in coffee	4.0	3.2	13.5	10.0	10.0
Sweet potatoes	1.0	3.9	5.4	2.4	2.5
Irish potatoes	....	....	.1	.5	....
Beans	4.7	3.6	6.3	10.2	....
Plátanos	.7	.8	7.6	6.2	8.8
Corn	6.7	5.5	18.5	13.2	15.0
Other crops	1.0	6.2	6.0	9.8	33.5
Acres Double Cropped[a]	*10.6*	*10.7*	*21.5*	*16.2*	*21.8*
PASTURE	**6.7**	**16.2**	**87.1**	**56.0**	**70.0**
WASTE LAND	**5.8**	**11.6**	**76.9**	**78.4**	**204.0**
TOTAL Acreage of Average Farm	**41.8**	**76.9**	**289.5**	**304.8**	**720.0**

[a] Since the acreage double-cropped has, in each case, been included in the figures for two separate crops, it must be treated as a minus quantity in calculating the "total acreage of the average farm" for each size group.

There is a tendency for tobacco to be combined with coffee wherever there is land suitable for the former crop. The 24 coffee and tobacco farms are coffee farms on which some land has been cleared and put in tobacco. The two coffee, tobacco, and food-crop farms are farms on which coffee is the principal source of income, supplemented by tobacco and food crops. The food crops are other than those grown in the coffee. The two coffee, tobacco, and livestock farms are farms near cities on which coffee is the principal crop, supplemented by tobacco and some dairy products. For analysis and comparison, the two coffee, tobacco, and food-crop farms and the two coffee, tobacco and livestock farms were combined with the twenty-four coffee and tobacco farms. Classified according to the number of acres devoted to coffee, the number of these coffee-tobacco farms is as follows:

Acres in Coffee	Number of Farms
20 or less	3
21–40	9
41–80	8
81–140	4
Over 140	4

A wide variety of crops were grown on both the coffee farms and the coffee and tobacco farms, but only a few of them were important. This is shown by the table on pages 656-57.

The acreage in coffee comprised practically 80 per cent of the land in crops on the coffee farms, while land in coffee and tobacco comprised about 70 per cent of the land in crops on the coffee and tobacco farms. On the coffee and tobacco farms, corn and beans and other crops were more important than on the coffee farms. These crops were largely double-cropped with tobacco. A slightly larger acreage of beans was planted, however, outside of coffee on the coffee farms than on the coffee and tobacco farms, while the reverse was true with reference to platanos and yautias. The food crops produced on both groups of farms were largely for home consumption, though on the coffee and tobacco farms, as will be shown later, the receipts from food crops were slightly larger than on coffee farms. This is due to the fact that the food crops double-cropped with tobacco were raised by laborers on shares and the owner's share was sold.

Some variation occurred in the combination of farm enterprises as between different size groups, but there was also considerable variation in the combination of enterprises on farms of the same size in each group. More land was double-cropped on the coffee and tobacco farms than on the coffee farms. This was due, of course, to the fact that many crops can be grown on land in tobacco after it is harvested. On both the coffee and the coffee-tobacco farms, the small farmer was double-cropping a larger percentage of his land than farmers in the larger size groups. It will be remembered that on the tobacco farms previously studied there was little difference in the percentage of land double-cropped as between the different size groups. This may be due to the fact that the investment in land was higher on the coffee farms than on the tobacco farms. Consequently, the farmer with a small acreage in coffee found it more necessary to double-crop wherever double-cropping was possible than did the tobacco farmer. There was considerable waste land on both the coffee and the coffee-tobacco farms. Such waste land in most instances is not suitable for pasture or crops of any kind. It is likely that as the price of land increases, the tendency will be to drop this land from that now included in farms.

II. FARM INCOME AND EXPENSES

On account of the September hurricane, virtually no coffee was harvested in 1928. Therefore, the average yield for the previous four years, 1924, 1925, 1926 and 1927, was used in estimating normal receipts from coffee. Up to the time of the harvesting, the expenses incurred in cleaning and pruning and care of shade apparently were what they would have been had there been a normal crop. Picking is done on contract and is paid for at the rate of $3.75 to $4 per hundred pounds. By using the average production of four years and applying the prevailing rate per hundred pounds for picking, harvesting expenses were arrived at which were about those which would have been incurred under normal conditions.

The price of coffee used in estimating farm incomes from coffee was the average price received for the same four years. This is slightly above the price prevailing prior to 1924. Receipts per acre from coffee were obtained by multiplying the average of the four-year yield by the average of the four-year prices. Data obtained from the books on a number of farms in each municipality indicate that the receipts thus obtained are not far from actual receipts prior to 1924, under what were considered normal conditions. Expenses are perhaps somewhat higher than they were previous to 1924, due to the slight increase in the cost of labor both in cleaning and

Average Receipts and Expenses of Coffee Farms With Specified Coffee Acreage

I. Receipts (In Dollars) From the Several Enterprises

Crop	20 Acres or Less	21–40 Acres	41–80 Acres	81–100 Acres	101–140 Acres	141–180 Acres	181–300 Acres	Over 300 Acres
PRINCIPAL CASH CROPS	664	1,511	3,010	4,485	4,830	7,298	11,091	21,375
Coffee	662	1,357	2,998	4,360	4,830	7,287	10,934	20,435
Tobacco	2	154	12	125	....	11	157	805
Cane	....	....	....	....	....	....	....	135
FOOD CROPS SOLD	211	322	699	775	870	1,109	1,440	3,018
Yautías	33	20	8	110	9	129	11	11
Bananas in coffee	118	204	450	300	266	407	1,088	1,155
Sweet potatoes	1	1	....	....	6	....	....	6
Irish potatoes	....	1	....	....	22	....	....	....
Beans	14	8	30	18	....	67	21	29
Citrus fruits	....	....	25	40	75	25	28	744
Plátanos	38	69	118	210	331	344	....	311
Plátanos in coffee	....	....	37	....	....	....	71	....
Corn	6	14	10	49	18	133	....	1
Other crops	1	5	21	48	143	4	221	761
LIVESTOCK AND LIVESTOCK PRODUCTS	32	106	19	77	83	30	36	38
Livestock sold	26	45	17	23	43	30	36	38
Livestock products [a]	6	61	2	54	40	....	....	....
MISCELLANEOUS [b]	40	24	6	....	....	....	....	....
TOTAL RECEIPTS	947	1,963	3,734	5,337	5,783	8,437	12,567	24,431

[a] Largely dairy products.

[b] Work off farm.

II. Classified Expenses (In Dollars)

Crop	20 Acres or Less	21–40 Acres	41–80 Acres	81–100 Acres	101–140 Acres	141–180 Acres	181–300 Acres	Over 300 Acres
MATERIALS PURCHASED	17	38	110	101	132	110	95	330
Seed	10	12	33	34	35	9	18	13
Sacks	1	6	19	19	19	20	24	75
Fertilizer	5	20	57	48	78	81	42	242
Miscellaneous	1	....	1	....	....	....	11	....
LABOR	601	1,224	2,082	3,585	3,357	5,081	7,196	14,228
Harvesting coffee	148	308	621	885	987	1,468	1,778	4,164
Paid labor on coffee	231	640	1,083	1,905	1,783	2,823	4,136	8,218
Unpaid labor on coffee	86	67	90	56	26	78	71	146
Other paid labor	76	92	124	364	221	236	330	630
Other unpaid labor	46	50	....	....	....	....	....	....
Compensation insurance	7	3	10	16	28	32	51	76
Supervision	7	64	154	359	312	444	830	994
SERVICES PURCHASED (Hauling coffee)	.61	2	2	4	4	17	19	100
REAL ESTATE COSTS	350	608	1,419	1,920	2,076	2,606	3.862	7.647
Taxes	37	57	140	217	218	333	411	934
Rent	....	....	....	....	....	1	....	....
Hurricane insurance	6	4	20	59	4	21	42	225
Fire insurance	....	1	4	2	....	....	102	38
Repair on buildings	35	53	62	136	117	108	187	291
Repair on machinery	6	14	29	26	30	50	50	574
Interest on investment	253	444	1,164	1,439	1,674	2,042	2.707	5,450
Depreciation of inventory	13	35	....	41	33	51	363	135
LIVESTOCK PURCHASED	....	....	13	16	....	33	14	....
TOTAL EXPENSES	968	1,872	3,626	5,626	5,569	7,847	11,186	22,305

in harvesting, and are thought not to be far from what may be expected for the next four or five years.

Receipts from bananas, oranges, and plátanos are somewhat lower than they would have been under normal conditions, as a part of these crops was likewise destroyed by the hurricane. It was impossible to obtain trustworthy data as to the receipts from this source for a period of years prior to the year of the study. Income from livestock and livestock products is probably greater than it would have been under normal conditions, for as a result of the distress following the hurricane many farmers sold more of their livestock than they otherwise would have sold. Also, the price of livestock products was somewhat higher following the hurricane. However, the receipts from this source are so small as compared with the receipts from other sources that little attention need be given to this item. By using the four-year average price and the expenses as incurred in 1927-28, except for harvesting coffee, the labor income of the operators on the farms studied might be considered to be about what it would have been under normal conditions. It is, however, of course, much greater than will be obtained during the next four or five years, or until the coffee trees and shade are restored.

The tables on pages 660-63 show receipts and expenditures for both coffee and coffee-tobacco farms in the several size groups.

On the coffee farms approximately 83 per cent of the receipts come from coffee. When receipts from bananas planted in coffee are included, 90 per cent of the receipts came from land in coffee. Oranges are also grown on the same land with coffee, especially in Yauco, and produce some additional cash income. Income from other crops was very small.

Total receipts were greater on the coffee-tobacco farms than on the exclusively coffee farms. On these farms income from corn and other crops, especially beans, is an item of some significance. These are double-cropped with tobacco, just as bananas and oranges are inter-cropped with coffee. Taking it altogether, income per acre for tobacco was much higher than for coffee, receipts from eleven acres in tobacco being in excess of receipts from 22 acres in coffee.

Receipts from livestock and livestock products were in the main of little importance on either type of farm. There were two farms in the coffee-tobacco group, however, on which income from dairy products was an important item; and for these, the farmers' profits were considerably above the average.

AVERAGE RECEIPTS AND EXPENSES OF COFFEE-TOBACCO FARMS WITH SPECIFIED COFFEE ACREAGE

I. Receipts (In Dollars) From the Several Enterprises

Item	20 Acres or Less	21–40 Acres	41–80 Acres	81–140 Acres	Over 140 Acres
PRINCIPAL CASH CROPS	1,397	1,993	5,262	6,488	19,536
Coffee	883	1,583	3,662	4,756	18,062
Tobacco	514	410	1,525	1,732	1,240
Cane	....	....	75	....	234
FOOD CROPS SOLD	241	478	990	1,676	1,967
Yautías	....	38	122	282	562
Bananas in coffee	100	196	180	712	375
Sweet potatoes	....	59	50	12	....
Beans	48	44	78	98	....
Citrus fruits	....	2	....	....	....
Corn	53	43	142	135	156
Other crops	40	32	193	137	327
Plátanos	....	64	225	300	547
LIVESTOCK AND LIVESTOCK PRODUCTS	12	37	380	326	2,287
Livestock sold	12	37	171	144	159
Livestock products	....	....	209	182	2,128
MISCELLANEOUS	....	63	58	180	12
TOTAL RECEIPTS	1,650	2,571	6.690	8,670	23,802
II. Classified Expenses (In Dollars)					
MATERIALS PURCHASED	172	122	361	263	374
Seed	72	57	109	75	146
Sacks	2	14	8	55	15
Fertilizer	97	50	237	133	213
Miscellaneous	1	1	7	....	....
LABOR ON COFFEE	612	1,002	2,116	3,844	12,151
Harvesting coffee	200	281	564	940	3,287
Paid labor on coffee	392	583	1,298	2,755	7,700
Unpaid labor on coffee	20	100	53	....	....
Supervision on coffee	....	38	201	149	1,164
LABOR ON TOBACCO	490	593	1,351	1,628	1,637
Paid labor on tobacco	450	520	1,100	1,400	1,412
Unpaid labor on tobacco	40	23	....	....	....
Supervision on tobacco	....	50	251	228	225
COMPENSATION INSURANCE	....	4	19	11	65
SERVICES PURCHASED (Hauling coffee)	....	....	2	....	4
REAL ESTATE COSTS	278	736	2,704	2,519	6,081
Taxes	44	59	234	243	709
Hurricane insurance	....	9	32	37	215
Fire insurance	4	....	....	....	....
Repair on buildings	8	122	578	300	616
Repair on machinery	....	7	108	185	10
Interest on investment	219	496	1,553	1,671	4,310
Depreciation of inventory	3	43	199	83	221
LIVESTOCK PURCHASED	2	13	21	....	....
TOTAL EXPENSES	1,554	2,470	6,574	8,265	20.312

Income from tobacco on farms with twenty acres or less of coffee in the coffee-tobacco group was only $514. If the income from beans, corn, and other crops is included with income from tobacco, the total income from tobacco in this group was $655. Expenses, including materials and labor, in tobacco were $652. For this size of farm, tobacco apparently added very little to the operator's earnings.

On farms of 21 to 40 acres in coffee in the coffee-tobacco group, income from tobacco and food crops double-cropped with tobacco was $588, while expenses on tobacco were $715. However, in this size group and in all size groups studied, it was found that on the average receipts from tobacco about met operating costs.

The coffee-tobacco farms studied in this district, though somewhat larger than the tobacco farms studied in the tobacco district, showed earnings about one-third lower.[4] The yield of tobacco on the coffee-tobacco farms was only 577 pounds per acre, compared with a per acre yield of 715 pounds in the tobacco district, while the price was also lower than on the farms specializing in tobacco. To what extent this resulted from the use of poorer soil and from a lack of experience with tobacco on the part of the coffee-grower, is not known. If the yield per acre and price per pound had been the same as prevailed in the specialized tobacco district, there would have been some advantage in combining tobacco with coffee.

Total expenses were slightly higher on coffee-tobacco farms than on those where no tobacco was grown. Labor is uniformly by far the largest single item of expense on both types of farms, but constitutes a higher percentage of the total on coffee-tobacco farms than on exclusively tobacco farms. Unpaid labor represents a very small proportion of the total in either of the two groups, but is slightly more on coffee-tobacco than on coffee farms. There was no unpaid labor whatever on the larger coffee-tobacco farms, and even on small farms supervision was an item of paid labor.

Fertilizer and seed is a larger item of expense on coffee-tobacco farms than on coffee farms. Investment in real estate was slightly larger on the coffee farms, but for both groups, taxes were an important item of expense.

III. OPERATORS' RETURNS FOR LABOR AND MANAGEMENT

The net return received by farm operators covered by this survey are roughly indicated by the tables on page 665. For convenience, the figures showing total receipts and total expenses for each type and size group of farm are compared in the table which follows, and the average net return or loss for the operator is calculated:

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[4] See Appendix H, pages 679-84.

RETURN TO OPERATORS FOR LABOR AND MANAGEMENT

I. Coffee Farms

Acres in Coffee	Receipts	Expenses	Return to Operator
20 or less	$947	$1,029	–$82
21–40	1,963	1,874	89
41–80	3,734	3,628	106
81–100	5,337	5,627	–290
101–140	5,783	5,569	214
141–180	8,437	7,847	590
181–300	12,567	11,186	1,381
Over 300	24,431	22,305	2,126

II. Coffee-Tobacco Farms

Acres in Coffee	Receipts	Expenses	Return to Operator
20 or less	$1,650	$1,554	$96
21–40	2,571	2,470	101
41–80	6,690	6,574	116
81–140	8,670	8,265	405
Over 140	23,802	20,312	3,490

It will be seen that, with one exception, the operator's income on both the coffee farms and the coffee-tobacco farms rose with an increase in coffee acreage—or with an increase in the size of farm, since coffee acreage may be taken as a good measure of the total farm area. Some small farmers were able to make a crop of coffee at a lower cost than farmers in the larger size groups, due apparently to better management; but the small farm operator with more than average managerial ability would have been able to produce coffee at an even lower cost on a larger farm.

In the first four size groups, respectively, operators on coffee-tobacco farms received on the average somewhat higher returns than operators of coffee farms. This, however, appeared to result more largely from advantages realized in connection with the coffee end of their enterprises than from the inclusion of tobacco in their system of farming.

Coffee-farm operating balances varied from a loss of $3,600 to a gain of $14,000. About one-fourth of the operators lost; another fourth showed neither gain nor loss; another fourth earned about as much as hired men, while the remaining fourth made profits greatly in excess of a hired man's wages. The coffee-tobacco farms studied in this district, though somewhat larger than the tobacco farms studied in the tobacco district, showed earnings about one-third lower. In the table below, the 99 coffee farmers and the 28 coffee-tobacco farmers covered by this survey are grouped according to their acreage in coffee, and according to the net income which they received.

Number of Farmers With Specified Income for Labor and Management, Grouped by Acreage in Coffee

I. Coffee Farmers

Acres in Coffee	All Incomes Groups	Net Loss	$0–$150	$151–$200	$201–$250	$251–$300	$301–$350	$351–$400	$401–$450	Over $450
20 or less...	18	3	5	3	1	2	..	3	..	1
21–40.......	16	4	..	1	2	..	1	..	1	7
41–80.......	16	5	..	..	..	..	3	..	..	8
81–100......	10	2	1	..	..	..	..	..	1	6
101–140.....	11	1	..	1	1	..	1	..	..	7
141–180.....	12	..	1	1		..	1	1	..	8
181–300.....	7	2	..	..		..	..	..	..	5
Over 300....	9	1	..	..	..	..	..	..	..	8
All Classes	99	18	7	6	4	2	6	4	2	50

II. Coffee-Tobacco Farmers

Acres in Coffee	All Incomes Groups	Net Loss	$0–$150	$151–$200	$201–$250	$251–$300	$301–$350	$351–$400	$401–$450	Over $450
20 or less...	3	1	1	..	..	..	..	..	..	1
21–40.......	9	1	1	2	1	..	1	..	1	2
41–80.......	8	4	..	1	..	..	..	..	..	3
81–140......	4	2	..	..	..	..	..	..	..	2
Over 140....	4	1	..	..	..	..	..	..	..	3
All Classes	28	9	2	3	1	..	1	..	1	11

Expenses per acre, especially for labor, decreased to some extent with an increase in acreage; while yield per acre remained about constant, though such differences as existed were in favor of small farms. So far as the future is concerned, yields on large farms promise to overcome the present narrow margin in favor of small farms, since the number of replantings in proportion to the acreage was greater on large farms—the assumption being that replanting will increase the quantity and quality of crops as soon as the new trees come into bearing.

The size of the farm is an important factor affecting economies in the use of labor. On an average, farmers who did not direct as much as $1,500 worth of labor would have made more working as hired men or as managers. Some small-farm operators were more efficient labor users than the majority of their fellows, but, on the average, the small farm proved such a handicap to the good farmer that his earnings were less than those of a mediocre farmer operating a larger property.

Where one operator was able to produce at a lower cost than another operator on farms the same size, as was not infrequently the case, the difference appeared to be largely the result of advantages in topography and bargaining ability with labor. Where the operator lived on the farm, a somewhat greater amount of coffee per unit of labor was produced.

One factor increasing the efficiency of labor on the larger farms was that on larger farms the manager directed more workers than on smaller farms, and with equally good results per worker, thus increasing the number of pounds of coffee produced per dollar of supervision. Unless a salaried superintendent has at least 30 laborers to direct, his compensation will absorb most of the profits of operation.

During coffee harvesting further economies were effected on the larger farms by more general use of mules and horses for transportation, and by better machinery and drying facilities. There were about one-third more horses per hundred dollars' worth of labor on farms of the four large size groups than on those of the four smaller size groups.

IV. COST AND USE OF CREDIT

Seventy-nine of the 99 coffee farmers, and 24 of the 28 coffee-tobacco farmers were using borrowed capital, which was mostly supplied by merchants. On small farms the merchant furnished as much as 82 per cent of the total amount advanced to the farmer, largely in the form of provisions, upon the security of the current crop, and at interest rates varying from 8 to 12 per cent. Interest varied with the amount of land in coffee somewhat more than with the source of credit, being higher, except in case of loans made by the Intermediate Credit Bank, for the owner or operator of a small farm than of a large farm. Details concerning the source, form, and rate of interest of operating capital on farms classified according to their acreage in coffee are given in the tables below.

So far as ability to meet these obligations—as measured in terms of income and in proportion to credit—was concerned, small farmers on either exclusively coffee or coffee-tobacco farms were in as good a position to repay the loan as the larger farmers. A merchant furnishing most of his crop advances to a farmer in the form of provisions and other merchandise might be so eager to increase his sales as to loan up to the limit of the value of the prospective crop. In practice, the ratio that credit bore to the total income from coffee farms ranged from 19 to 31 per cent on farms in the three smaller size groups, and from 30 to 45 per cent on farms in the five larger size groups. On coffee-tobacco farms of 20 acres or less, advances were only 13.71 per cent of total income, which is the lowest ratio recorded.

As in case of tobacco farms already described, other factors than ability to pay enter into the cost of credit. Cost of

Operating Credit for Farms With Specified Coffee Acreage

I. Coffee Farms

Size-Group (In terms of coffee acreage) and Credit Source	Amount By Source and Size-Group	Percentage From Given Source For Each Size-Group	Rate of Interest	Form	
				Provisions	Cash
20 acres or less	$240	100.0	10.0	....	$240
Bank	240	100.0	10.0	....	240
21–40 acres	5,020	100.0	9.3	$3,370	1,650
Merchant	2,120	42.2	10.9	1,770	350
Individual	1,900	37.9	10.0	1,300	600
Intermediate Credit Bank	700	13.9	6.0	300	400
Bank	300	6.0	10.0	....	300
41–80 acres	19,200	100.0	9.4	5,400	13,800
Merchant	4,300	22.4	10.0	2,250	2,050
Individual	6,300	32.8	10.0	3,150	3,150
Intermediate Credit Bank	3,100	16.2	6.0	....	3,100
Bank	5,500	28.6	10.3	....	5,500
81–140 acres	5,300	100.0	10.0	3,000	2,300
Merchant	2,000	37.7	12.0	2,000	...
Individual	2,300	43.4	10.0	1,000	1,300
Intermediate Credit Bank	1,000	18.9	6.0	....	1,000
over 140 acres	20,600	100.0	7.8	3,700	16,900
Merchant	1,200	5.8	6.0	1,200	.....
Individual	11,000	53.4	8.7	2,500	8,500
Intermediate Credit Bank	6,200	30.1	6.0	....	6,200
Bank	2,200	10.7	10.0	....	2,200

II. Coffee-Tobacco Farms

Size-Group (In terms of coffee acreage) and Credit Source	Amount By Source and Size-Group	Percentage From Given Source For Each Size-Group	Rate of Interest	Form	
				Pro-visions	Cash
20 ACRES OR LESS	$5,858	100.0	10.1	$3,435	$2,423
Merchant	4,810	82.1	10.5	3,035	1,775
Individual	400	6.8	12.0	400	...
Intermediate Credit Bank	200	3.4	6.0	..	200
Bank	448	7.7	6.0	....	448
21–40 ACRES	6,320	100.0	11.0	4,215	2,105
Merchant	2,980	47.2	10.9	2,475	505
Individual	3,340	52.8	11.1	1,740	1,600
41–80 ACRES	18,800	100.0	10.1	7,950	10,850
Merchant	4,900	26.1	11.1	4,350	550
Individual	10,300	54.8	9.8	3,600	6,700
Intermediate Credit Bank	1,600	8.5	6.0	....	1,600
Bank	2,000	10.6	12.0	....	2,000
81–100 ACRES	27,760	100.0	9.5	1,100	26,660
Merchant	3,900	14.1	10.3	1,100	2,800
Individual	19,000	68.4	9.8	....	19,000
Intermediate Credit Bank	2,960	10.7	6.0	....	2,960
Bank	1,900	6.8	10.4	....	1,900
101–140 ACRES	30,350	100.0	9.7	17,550	12,800
Merchant	23,100	76.1	10.3	16,550	6,550
Individual	2,150	7.1	11.0	1,000	1,150
Intermediate Credit Bank	4,500	14.8	6.0	....	4,500
Bank	600	2.0	12.0	....	600
141–180 ACRES	39,300	100.0	8.8	12,150	27,150
Merchant	19,900	50.6	9.0	12,150	7,750
Individual	13,000	33.1	10.0	....	13,000
Intermediate Credit Bank	6,400	16.3	5.7	....	6,400
181–300 ACRES	30,900	100.0	9.2	3,100	27,800
Merchant	19,300	62.5	8.9	2,150	17,150
Individual	10,900	35.3	9.0	950	9,950
Intermediate Credit Bank	700	2.2	6.0	....	700
OVER 300 ACRES	100,000	100.0	8.7	23,750	76.250
Merchant	35,500	35.5	9.4	13,750	21,750
Individual	20,000	20.0	10.0	10,000	10,000
Intermediate Credit Bank	22,500	22.5	6.0	....	22,500
Bank	22,000	22.0	9.2	....	22,000

watching loans is relatively higher on the smaller units of operation. Usually, a man who understands the care and cultivation of coffee is employed by the lender to visit regularly the farmers to whom he advances credit, in order to see that the money loaned is spent on the crop that secures it. During the harvest, visits are made to the farms to insure that the

MORTGAGE CREDIT FOR FARMS WITH SPECIFIED COFFEE ACREAGE

I. Coffee Farms

Size-Group (In terms of coffee acreage) and Credit Source	Amount By Source and Size-Group	Years to Maturity	Rate of Interest	Value of Property	Mortgage as a Percentage of Value of Property
20 ACRES OR LESS	$14,900	..	6	$67,720	22.0
Federal Land Bank	13,500	23	6	57,221	23.6
Individual, 1st mortgage	1,400	1	6	10,499	13.3
21–40 ACRES	18,500	..	6	76,037	24.3
Federal Land Bank	17,800	28	6	73,433	24.2
Other banks	700	10	7	2,604	26.9
41–80 ACRES	77,900	..	6.2	245,073	31.8
Federal Land Bank	63,900	36	6	214,380	29.8
Individual, 1st mortgage	11,000	1	6	30,693	35.8
Individual, 2nd mortgage	3,000	1	12	....	....
81–100 ACRES	61,300	..	6	209,342	29.3
Federal Land Bank	57,300	22	6	193,834	29.5
Individual, 1st mortgage	4,000	1	6	15,508	25.8
101–140 ACRES	55,700	..	6	259,863	21.4
Federal Land Bank	51,200	25	6	243,916	21.0
Individual, 1st mortgage	4,500	2	6	15,947	28.2
141–180 ACRES	48,000	..	6	201,530	23.8
Federal Land Bank	48,000	11	6	201,530	23.8
181–300 ACRES	54,300	..	7.4	265,187	20.5
Federal Land Bank	27,300	12	6	190,362	14.3
Individual, 1st mortgage	26,000	5	9	74,825	34.7
Individual, 2nd mortgage	1,000	3	9	....	....
OVER 300 ACRES	110,000	..	6.8	540,065	20.4
Federal Land Bank	67,000	10	6	350,980	19.1
Individual, 1st mortgage	43,000	4	8.3	189,085	22.7

II. Coffee-Tobacco Farms

Size-Group (In terms of coffee acreage) and Credit Source	Amount By Source and Size-Group	Years to Maturity	Rate of Interest	Value of Property	Mortgage as a Percentage of Value of Property
21–40 ACRES	15,300	..	6.3	56,977	26.9
Federal Land Bank	8,200	12	6	39,374	20.8
Individual, 1st mortgage	6,100	6	6	17,603	34.7
Individual, 2nd mortgage	1,000	..	12	....	....
41–80 ACRES	39,100	..	6	142,882	27.4
Federal Land Bank	34,100	24	6	116,134	29.4
Individual, 1st mortgage	5,000	1	6	26,748	18.7
81–140 ACRES	85,800	..	6.1	110,684	77.5
Federal Land Bank	77,800	7	6	60,279	129.1
Individual, 1st mortgage	8,000	17	8	50,405	15.9
OVER 140 ACRES	64,300	..	6	172,006	37.4
Federal Land Bank	64,300	22	6	172,006	37.4

coffee is picked at the proper time and delivered to the creditor. All this costs more in proportion to the amount loaned on a small farm than on a large one.

Sixty-nine out of the 99 coffee farmers and 21 out of 28 coffee-tobacco farmers used mortgage, or investment, credit. The source, rate of interest, and ratio of mortgage credit to value of property are shown in the tables on page 670.

As compared with the tobacco farmers,[5] the coffee farmers obtained a larger percentage of this credit from the Federal Land Bank, which loans at a lower rate than other lenders. There was little difference in the ratio of the amount of mortgage to the value of the property as between farms of different size. The Federal Land Bank is to be credited largely for this, but the size of the farm does not affect the cost of making and supervising a mortgage loan made for capital, to the extent that it does a loan made for current operating expenses.

Coffee farmers, like tobacco farmers, and cane *colonos,* sell their crops in practically every instance to their creditors. This This results in a multiplicity of scattered individuals and merchants acting as independent marketing agencies, which discourages the development of a sound marketing policy.

Co-operative associations for preparing, grading, and marketing coffee have been established, but they handle only a small share of the Island's crop. They have, however, met with a somewhat larger measure of success than the tobacco co-operatives. Their problem, to begin with, was not so complicated. The production of coffee has been declining, while that of tobacco has been increasing, and, consequently, there was more latitude in selecting markets for coffee than for tobacco. They have made some progress in emphasizing the necessity for greater care in preparing coffee for market and in obtaining differential prices for superior quality. Like most co-operatives, however, they were expected to solve all the problems of the coffee farmer at once, and lost some reputation when they failed to do so.

The Intermediate Credit Bank has financed the coffee associations and co-operated with them in the matter of policies and management. While these associations still have much to do in the direction of building up a trained personnel capable of analyzing and forecasting market conditions and of otherwise putting their services on a strictly business basis, they have already accomplished much in aiding the growers who produce a good quality of coffee to get fair prices for their crops, and have helped to reduce the waste of an excessive number of selling agencies.

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[5] See Appendix H, page 694.

Coffee co-operatives have accomplished even more in the way of supplying credit than they have in the matter of marketing. They secure loans for their members at a much lower rate than other lenders' agencies. They also have an opportunity to assist the farmer, especially the small farmer, to lower his cost of production. Like the small tobacco farmers, the small coffee growers are finding competition more difficult to meet each year; their principal cost of operation is for labor, and their best chance to lower cost of production is by the more efficient use of labor. They, therefore, need a simple accounting system to enable them to locate points where their costs are excessive in time to prevent a loss. They can also increase their income from supplementary crops inter-cropped with coffee. Where tobacco is combined with coffee, the problem of adequate storage facilities and preparation for market is an important one. Better methods of cultivation, especially of pruning and replanting coffee, are essential. In a word, the small coffee grower faces the problem of putting his operations on a businesslike basis without possessing the training or experience to do so. The agencies supplying his credit and marketing his products give him the kind of supervision required to protect the interest of the creditor, and he pays for it. Without much additional expense he might be given a kind of supervision that would help him to combine crops and to conduct his operations more efficiently so as to increase his income.

V. SUGGESTIONS FOR INCREASING THE OPERATOR'S RETURNS

The income per acre from coffee under the best of conditions is low. The number of acres that an average farm family can keep clean and harvest is very small. Remunerative coffee growing depends largely upon obtaining and directing comparatively large numbers of laborers during the cleaning and harvesting period, with the result that the greater the amount of coffee per unit of labor the greater the operator's earnings.

On the average the small farmer is not able to obtain as much coffee per unit of labor as is the large farmer. In the few cases where the small farmer, through superior managerial ability, did accomplish this, the large farmer, nevertheless, made a better income on account of his larger total crop. So great was the difference in the earnings of the small farmer and the large farmer that the large farmer was in many instances able to live in town, leaving his farm entirely in charge of a supervisor except for infrequent visits, and yet to grow coffee at a lower cost.

Economies that can be realized in the operation of large, as compared with small, farms, make it seem probable that in time coffee land which is mountainous, and is otherwise suited to large-scale operations, will be operated in large units. The problem in this connection is to facilitate the transition from small to large farms with as little injury to all concerned as possible. Minimum wage standards based largely on piecework should be established to protect the interest of the laborer.

While an increase in the unit of operation will, therefore, probably occur through the combination of small holdings, much can be done to help many small farmers to operate efficiently enough to retain their farms. Today, a number of them are meeting current operating expenses and earning enough in addition to pay for their land. In other words, we have examples of small farmers who are getting ahead. The methods of these farmers should be studied as models for their less successful neighbors. A study of a large number of small farms is needed to analyze the different ways in which the more successful operators combine crops and livestock, the details of their operating practices, and, above all, the way they manage to secure efficiency in the use of labor.

The small farmer, if left entirely to himself, is not in a position to make use of the information being supplied by the Insular Department of Agriculture and Labor, because of his lack of training and because he is wedded to a more or less self-sufficing type of agriculture. For example, he has not been able to finance replantings other than from his own seedlings, which are in many instances of poor quality. Since his operating capital is small, it is necessary for him to spread the labor cost of replanting over several years. Present credit facilities are not well adapted to dealing with this problem.

Methods of preparing coffee for market call for much additional study. Those employed at present have been handed down from a time when roads and means of transportation were less developed. Cleaning, grading, and storing can be more efficiently carried on today at central and terminal markets than on the farm itself, as is the present practice. The co-operative associations, by establishing central cleaning and storage plants, have already made some headway in bettering conditions in this respect.

As he is operating at present, the coffee farmer finds little advantage in using part of his land for tobacco. For farms near the cities, some further increase in income may be realized from increased production of dairy products, and on all farms the possibility of increasing income by increased production of food crops should be explored.

APPENDIX H

FARM MANAGEMENT: TOBACCO

In order to get as accurate a picture as possible of the character of farm organization and management in the tobacco industry at the present time and to see how its efficiency might be increased, a farm management study was undertaken. The municipalities of Cayey, Comerío, and San Lorenzo were selected for detailed study. According to the 1920 Census, Cayey had 21 per cent of its crop land in tobacco; Comerío 41 per cent, and San Lorenzo 25 per cent. Tobacco accounted for 36 per cent of the value of all crops in Cayey, 67 per cent in Comerío, and about 41 per cent in San Lorenzo.[1]

All the farms studied lie in the piedmont region, a generally fertile area of rolling to hilly topography, where fairly uniform soil conditions prevail. Because of the type of soil, tobacco production has long been the most important source of income in this region, but sugarcane is also an important crop in Cayey, fruits and nuts in Comerío, and vegetables in San Lorenzo. Within recent years cane has pushed on to some tobacco lands in Cayey, especially in the valley bottoms, while fruits and nuts have increased in importance in Comerío, and vegetables in San Lorenzo.

Farm management schedules showing details of operation and financial records for 120 farms for the calendar year 1928 were collected by the survey method. For the purpose of this study, these were analyzed in eight size groups, according to the number of acres in tobacco in each farm. The number of farms in each size group is as follows:[2]

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[1] According to the census, the land in tobacco in Porto Rico in 1919 totaled 39,068 acres or a little more than 8 per cent of the land in the principal field crops. Porto Rico's tobacco producing area is in the central western portion of the Island, almost directly south of San Juan and north of Guayama. Cidra is its approximate center. Tobacco is grown elsewhere, but except in this region it is of minor importance.

[2] Data were recorded in complete acres—with fractions rounded off. The reader should notice that the use of unequal class intervals precludes certain comparisons that might otherwise be made of the data presented in this appendix.

Acres in Tobacco	Number of Farms
6 or less	22
7–13	23
14–20	31
21–27	10
28–34	7
35–41	5
42–63	9
Over 63	13

Supplementary figures for the quantity of tobacco sold and prices realized were obtained from dealers' books through the co-operation of private dealers and the *tabacaleros*, or co-operative marketing organizations.

No reliable data are available showing the yield of tobacco per acre over a period of years for any municipality taken as a whole. In each municipality, however, a number of farmers were found who had kept records showing these facts for their particular farms. Yields for several succeeding seasons were obtained also from a few of the largest and oldest corporations growing and financing tobacco in these municipalities.

The farms visited were taken in the order in which they came. A few out-of-type farms and a few not otherwise representative of the type of farming found in the community or not operated on a business basis were excluded. Otherwise, the study took in each farm as it came in the communities visited. In Cayey there were areas in which sugarcane was the predominating crop. These areas were avoided.

The prices of labor and fertilizer and other cost items for the year studied appear to be representative of those in other years. The average price received for tobacco on farms included in the survey was 29.2 cents per pound. This appears to be slightly above the price paid over a period of years, although prices (and likewise yields) vary considerably from season to season. All things considered, economic conditions in the area studied were such as to make the farm year 1928 one of good returns. Likewise, it may be said that the area studied was somewhat above the average for the tobacco producing section as a whole.

I. FARM ORGANIZATION

On the basis of their principal source of income, the farms included in the study may be classified about as follows: 81 all-tobacco farms; 22 tobacco and coffee farms; five tobacco, coffee, and other cash crop farms; four tobacco and other cash crop farms; four tobacco and livestock farms; one tobacco, coffee, other cash crops, and livestock farms; one tobacco, other cash crops, and livestock farm; one tobacco, coffee, and miscellaneous farm; one tobacco and miscellaneous farm.

The 81 all-tobacco farms had an average of 61 per cent of their cultivated area in this crop and derived 83 per cent of their income from it. They vary in size from 10 to 1,200 acres.

The 22 tobacco and coffee farms are of all sizes. In the main the land in coffee is not suitable for tobacco or other tillable crops, but on account of topography and soil is well adapted to coffee. The coffee raised on many of the smaller farms is to supply the family, and only in exceptionally favorable years produces an appreciable cash income. Except on the larger farms, the trees are poorly cared for, and give a low yield per acre. Markets for coffee in the tobacco area are less well organized and prices are lower than in the regular coffee districts. It is, therefore, difficult to obtain credit for the purpose of producing coffee. The result is that this crop is gradually disappearing from the tobacco areas. These 22 tobacco and coffee farms are consequently, in the main, tobacco farms on which coffee remains on land not suitable for the major crop.

The five tobacco, coffee, and other cash crop farms are tobacco farms on which the income from coffee and other cash crops, especially bananas and food crops, is important. In the main, they are large enterprises, with some land in coffee interspersed with banana trees for shade, while the land in tobacco is double-cropped with corn, beans, and potatoes on shares, following the tobacco harvest. The four tobacco and other cash-crop farms are farms where food crops, especially yautías and plátanos, are produced for market. These vary more largely from regular tobacco farms than those in the other classification.

The tobacco and livestock farms, with one exception—which is a dairy farm selling retail milk—are simply big tobacco plantations on which there is a large amount of rough land for pasture. The livestock calls for very little labor and attention as all feed is obtained from grazing and little or no shelter is required. The one tobacco, coffee, other cash crop, and livestock farm is a large tobacco plantation on which bananas are grown in the coffee and there is considerable land for pasturing. The same is true for the one tobacco, other cash crop, and livestock farm, except that the income from other cash crops is more largely from beans and corn instead of bananas. The one tobacco, coffee, and miscellaneous farm is a farm which embraces six acres of tobacco and six acres of coffee, while the operator earned $200 income from labor outside the farm during the year reported. The one farm classified as a tobacco and miscellaneous farm contains ten acres of tobacco and its operator earned $250 from labor outside the farm.

All these farms are essentially of the same type so far as crops and livestock are concerned. The use of land, the income, and the expenses, vary so largely with the acreage under tobacco that any classification based on differences in the ratios of other crops would be of little use for analyzing their organization and operations. All things considered, the most logical classification for analyzing farm organization and efficiency in this group is acres in tobacco.

About 36 per cent of the land in the farms studied is in tobacco. Corn is second, and coffee is next in importance; but 83 per cent of the cash income comes from tobacco. The largest percentage of all the land in farms is in pasture and waste land. The latter is not suitable for cultivation and in most instances not adapted for grazing. In fact, much of the land in pasture might be listed as waste land, as it is too hilly and too stony to carry livestock. This helps to explain why in each of the municipalities studied the land in farms decreased between 1910 and 1920, although the acreage in crops tended to increase. The shrinkage of farm area was confined to waste land and pasture, some of the best of the pasture doubtless going into crops.

Food crops, including rice and forage crops, are largely for use on the farm. Where coffee is important it is because, as previously mentioned, the farm contains steep, protected hillsides that will produce coffee with little expenditure of money or effort.

There is considerable variation, however, in the way in which crops other than coffee are combined with tobacco. As seen in the table on page 679 the proportion of the land in yautías, bananas, and rice tends to decrease with each increase in the acreage in tobacco, while the percentage of land in sweet potatoes, beans, and corn remained more or less constant, regardless of the acreage in tobacco.

The amount of land in tobacco had little influence on the amount of land double-cropped. It is usually thought that large farms do not double-crop as large a proportion of their

AVERAGE ACREAGE IN INDICATED CROPS ON FARMS WITH SPECIFIED TOBACCO ACREAGE

Crop	6 Acres or Less	7–13 Acres	14–20 Acres	21–27 Acres	28–34 Acres	35–41 Acres	42–63 Acres	Over 63 Acres
PRINCIPAL CASH CROPS	8.5	13.1	33.1	30.8	47.3	69.4	74.6	145.3
Coffee	4.1	4.0	5.0	3.5	11.8	22.4	13.3	26.7
Cane	—	—	.4	.2	—	6.0	1.0	1.2
Cane not harvested	—	—	—	3.0	4.3	4.0	3.7	3.8
Tobacco	4.4	9.1	17.7	24.1	31.2	37.0	56.6	113.6
FOOD CROPS SOLD	12.2	[a]16.7	27.7	41.0	32.7	[b]51.0	69.0	114.0
Yautías	1.0	.9	2.8	3.3	2.4	2.0	3.3	5.2
Bananas	1.6	1.9	2.0	5.8	1.6	2.8	1.7	3.1
Sweet potatoes	1.7	1.8	4.7	6.8	7.2	12.0	13.3	19.7
Beans	2.1	4.0	4.2	8.1	4.3	8.4	9.6	24.4
Citrus	—	—	.1	—	—	.4	—	—
Plátanos	.6	.7	1.3	1.9	2.2	.4	2.4	1.8
Corn	3.5	6.2	10.5	13.6	14.4	22.4	35.0	57.9
Rice	1.4	1.1	1.5	1.2	—	2.4	3.7	1.8
Cowpeas	.2	.2	.6	—	—	—	—	—
Yams	.1	—	—	.3	.6	.2	—	.1
[c]*Acres Double Cropped*	*5.1*	*8.9*	*16.5*	*16.9*	*14.4*	*28.8*	*38.9*	*63.0*
PASTURE	5.1	7.8	26.4	35.4	30.0	83.2	77.8	128.6
WASTE LAND	5.2	6.4	17.3	81.7	56.4	33.0	76.5	109.2
TOTAL Acreage of Average Farm	26	35	93	172	152	208	259	434

[a] Small acreage in onions not shown but included in total.

[b] Small acreage in cabbage not shown but included in total.

[c] Since the acreage double-cropped has, in each case, been included in the figures for two separate crops, it must be treated as a minus quantity in calculating the "total acreage of the average farm" for each size group.

land as normally small farms. In fact, however, there was little difference, so far as size of the farm is concerned, in the degree of the intensiveness with which land was used.

Differences in the cropping system are much greater than differences in the kind of livestock kept. Most of the latter, in the tobacco country, consists of work oxen—though mules are also used—horses for transportation, dairy cattle for home use, young cattle kept for beef and for future work stock, and swine and chickens for family consumption. The dairy products sold were important only on twelve farms, which were situated near cities. Oxen were kept on 91 per cent of the farms, mules on 23, horses on 81, dairy cattle on 88, and young stock on 66. The table below shows the average number of livestock per farm that were kept at the beginning of 1928 on the 120 farms covered by this survey.

AVERAGE NUMBER OF LIVESTOCK PER FARM
(Farms classified according to number of acres in tobacco)

Livestock	6 Acres or Less	7–13 Acres	14–20 Acres	21–27 Acres	28–34 Acres	35–41 Acres	42–63 Acres	Over 63 Acres
Oxen	2.2	3.2	6.8	10.4	8.8	10.0	12.6	35.2
Milk cows	2.3	3.2	5.6	7.7	14.1	6.4	10.7	15.8
Young stock	3.1	6.0	1.1	16.7	33.0	13.5	13.0	29.8
Mules	1.0	2.0	4.3	3.0	2.5	2.0	3.2	9.9
Horses	1.4	2.0	2.0	3.1	5.0	2.5	2.8	4.2
Hogs	4.0	1.0	2.8	3.0	5.0	4.5	3.3	6.7
Chickens	27.4	42.5	35.2	—	60.0	—	—	55.0

As might be expected, the number of livestock tends to increase with an increase in tobacco acreage. So far as oxen, milk cows, and young stock are concerned, this increase is not proportional to the increase in tobacco acreage, while there seems to be little relation between the area in the crop and the number of horses, hogs, and chickens carried on a farm. Only 75 per cent of those in the group having six acres or less in tobacco had any oxen and mules. On the very small farms the preparation of land and cultivation of all crops was done by hand.

II. FARM INCOME AND EXPENSES

The average total gross cash income on the farms in this study was $6,052, of which $5,063 or 84 per cent came from tobacco. Next in importance was coffee, followed in order by livestock and livestock products, and by beans. Compared with tobacco, the average income from coffee is low in proportion to the acreage. And even so, it is likely that, because of the widespread destruction of the coffee trees by the recent hurricane, the income from coffee here reported is much higher than it will be during the next few years.

The tables on pages 681-82 show the amount of income derived from various crops by the 120 farms covered by this survey, and also a classified statement of their expenses. Here, as elsewhere in this study, farms are grouped according to their acreage in tobacco.

Income from livestock was perhaps larger than it would have been except for the hurricane. Practically all farmers lost part if not all of their houses, barns, and other equipment during the storm and, as already mentioned, in practically every instance either sold all of their livestock, or more than they would have sold under normal conditions, in order to get cash to put their farms again on an operating basis. There was, consequently, a decrease in the amount of livestock on these farms at the end of the year as compared with the number at the beginning of the year. Since the price of dairy products rose immediately after the hurricane, total income from livestock and livestock products was perhaps twice as great as it would have been under normal conditions.

Income from food crops is largely from land double-cropped with tobacco. On the larger farms it represents proceeds from the sale of the owner's share of food crops produced by the laborers on shares. On the smaller farms it is derived from food crops produced in excess of the needs of the farm family. Income from miscellaneous sources is largely wages for work done off the farm, especially by farmers on the smaller holdings.

Labor costs, involving outlays for hired labor, supervision,

AVERAGE RECEIPTS AND EXPENSES OF FARMS WITH SPECIFIED TOBACCO ACREAGE

I. Receipts (In Dollars) From the Several Crops Grown

Crop	6 Acres or Less	7–13 Acres	14–20 Acres	21–27 Acres	28–34 Acres	35–41 Acres	42–63 Acres	Over 63 Acres
PRINCIPAL CASH CROPS	870	1,613	3,683	4,038	5,599	8,478	9,837	21,338
Coffee	59	191	498	91	307	912	442	1,080
Tobacco	811	1,422	3,153	3,947	5,292	7,566	9,235	20,138
Cane	—	—	32	—	—	—	160	120
FOOD CROPS SOLD	61	81	300	411	484	240	362	652
Yautias	13	13	82	60	42	9	—	84
Bananas	7	14	84	170	157	30	88	22
Bananas in coffee	12	—	1	—	—	—	—	—
Sweet potatoes	7	11	29	35	21	10	22	9
Beans	7	10	21	49	95	67	210	269
Plátanos	13	6	32	6	—	16	25	153
Corn	1	—	22	91	52	100	17	112
Cowpeas	1	12	11	—	—	—	—	—
Other crops	—	15	18	—	117	8	—	3
LIVESTOCK AND LIVESTOCK PRODUCTS	17	61	130	348	618	415	307	1,212
Livestock sold	17	49	119	348	294	179	187	701
Livestock products [a]	—	12	11	—	324	236	120	511
MISCELLANEOUS [b]	29	3	—	—	—	—	—	—
TOTAL RECEIPTS	977	1,758	4,113	4,797	6,701	9,133	10,506	23,202

[a] Largely dairy products.

[b] Work off farm.

Average Receipts and Expenses of Farms With Specified Tobacco Acreage *(Cont'd)*

II. Classified Expenses (In Dollars)

Item	6 Acres or Less	7–13 Acres	14–20 Acres	21–27 Acres	28–34 Acres	35–41 Acres	42–63 Acres	Over 63 Acres
MATERIALS PURCHASED	133	232	357	592	756	769	1,258	3,156
Seed	28	39	40	45	126	140	144	467
Fertilizer	85	143	240	448	534	434	872	2,110
Insecticides	16	48	73	98	96	195	242	567
Miscellaneous	4	2	4	1	—	—	—	12
LABOR	636	1,020	2,325	2,521	3,593	5,303	5,954	13,807
Labor on tobacco. .	283	778	1,641	2,298	2,842	4,408	5,030	11,784
Supervision	—	—	107	153	367	291	419	1,203
Other labor.	33	37	310	46	364	510	412	742
Unpaid labor on tobacco	280	185	201	—	—	—	—	—
Other unpaid labor	39	19	56	12	—	66	77	43
Compensation insurance	1	1	10	12	20	28	16	35
SERVICES PURCHASED (Hauling tobacco)	5	13	6	6	2	13	22	20
REAL ESTATE COSTS. . .	310	437	1,021	1,249	1,907	2,292	2,565	4,561
Taxes	25	42	108	147	366	265	298	501
Rent	11	—	15	7	142	222	262	764
Insurance.	—	—	7	—	11	2	33	12
Repair on buildings	61	36	77	72	68	165	91	202
Repair on machinery	1	8	16	9	11	6	22	102
Interest on investments	191	294	685	869	1,139	1,281	1,580	2,567
Depreciation of inventory.	21	57	113	145	170	351	279	413
LIVESTOCK PURCHASED	—	—	20	37	—	68	—	419
TOTAL EXPENSES	1,084	1,702	3,729	4,405	6,258	8,445	9,799	21,963

and unpaid services amount to about 61 per cent of total expenses. The percentage of total expense which these costs represent does not vary greatly in proportion to area on large and small farms. Expenses increased from $1,084 on farms with six acres or less in tobacco to $21,963 on farms with more than 63 acres in tobacco. Unpaid labor is the outstanding item in the group of farms having six acres and less in tobacco. As the acreage in tobacco increases, the amount of unpaid labor tends to decrease. Supervision becomes important as the size of the farm increases. It should also be noted that fertilizer is an important item in every group. Considered in relation to total expenses, capital costs are next in importance to labor costs and are closely followed by costs of supplies and material. Interest, taxes, depreciation, insurance, and building upkeep amounted to about 25 per cent of all expenses. Interest charge is on capital invested, but does not include interest on indebtedness and operating capital.[3] The rate of interest charged was 6 per cent. This was below the prevailing rate, but is about that charged by the Federal Land Bank. Both interest and taxes rank as important items of expense.

No attempt was made to collect data showing the quantity or value of farm products consumed by the farm family. Such information would have been valuable for many purposes; but for studying farm organization and other conditions having to do with the actual operation of farms, and for pointing out ways in which these may be improved, it seemed wise not to include the value of such items.

III. OPERATOR'S RETURNS FOR LABOR AND MANAGEMENT

Incomes of farm operators for labor and management varied from a loss of $107 on farms with six acres and less of tobacco to a gain of $1,239 on farms having more than 63 acres in tobacco.

The net return which a farmer with a given tobacco acreage received is shown by the data below, together with average gross receipts and expenses:

Acres in Tobacco	Receipts	Expenses	Return to Operator
6 or less	$977	$1,084	–$107
7–13	1,758	1,702	56
14–20	4,113	3,729	384
21–27	4,797	4,405	392
28–34	6,701	6,258	443
35–41	9,133	8,445	688
42–63	10,506	9,799	707
Over 63	23,202	21,963	1,239

The influence of extremes is very pronounced. Farmers with the smallest acreage of tobacco showed considerable loss, while those with the largest showed a good profit. Labor income of the intermediate groups, especially in the 14-20, 21-27, and 28-34 acres classes, were fairly uniform. Increasing the acreage of tobacco from 17 acres to 37 acres did not increase the ratio of income to volume of operation. However, there was a general tendency for the income to increase with the increase in tobacco acreage.

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[3] It might have been well to have used a rental basis for the charge for real estate but renting is not prevalent on the Island and there is no established basis for determining rental. Of the farms included in this study, five were rented farms. The per acre rental varied from $4.60 to $20.30.

Receipts from all crops per acre of tobacco on farms having six acres or less in the latter crop were $211, as compared with only $205 for the group with more than 63 acres in tobacco. Income from crops other than tobacco did not increase as much in proportion between farms with a small and a large acreage of tobacco, respectively, as did income from tobacco itself. Except in the case of coffee, other income was largely from food crops, especially corn and beans. It is practically impossible for the farmers to keep corn or beans or other food crops for any great length of time on account of the rapid deterioration of these commodities in the tropics. Consequently, they must sell soon after harvest even though they must repurchase the same kind of products at a later period. On farms with a large acreage in tobacco, food crops are raised on shares by the laborers, more for their benefit than for that of the owner. Moreover, there is not the same interest taken in harvesting and selling the food crops on the larger farms as on the smaller farms. In fact, on many of the large farms the laborer is given gratis all the food he can raise after the tobacco is harvested.[4]

Income from livestock and livestock products increased with the acreage in tobacco, though not to the same extent as the income from other crops. Nevertheless, income from livestock on farms having more than 63 acres in tobacco was large as compared with other crops, probably because farms with an extensive tobacco acreage generally contain considerable waste land and pasture. Farms with a small acreage in tobacco were usually small farms, and all their pasture was needed for work animals and livestock to supply the family. Income from dairy products, while of considerable importance on some of the larger farms, affected only a few in each class. In the group having 28-34 acres in tobacco, with an average of $324 from livestock products sold, there were only two farms; while in the group having more than 63 acres in tobacco and an average income from dairy products of $511, there were but three farms.

Coffee was the most important source of income under "other crops" on 22 farms of the 120 farms studied, while food crops were more important than coffee on seven farms. Receipts from coffee and bananas exceeded the cash outlay in each size group.[5] The excess of receipts over expenses per acre of coffee on farms with 1-13 acres in tobacco was $22 per acre; it was $10 per acre in the second group, and $12 per acre in the third group. If, however, the use of real estate and capital is charged against these crops at the average cost per acre on all farms of $9.43, the net return from coffee was small.

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[4] See also Chapter II, page 28.

From our analysis of farms in the tobacco districts it appears that coffee combined with tobacco was profitable. Our data on this point are not altogether conclusive, however, since receipts from sources other than coffee and tobacco varied for the different types and size groups studied. It may be noted that where the acreage in coffee was important, both that crop and bananas grown with the coffee were as a rule better cultivated. Furthermore, the bananas grown with coffee furnish the farm family and laborers with considerable food as well as some additional cash income.

The low returns per acre from coffee make it apparent that coffee does not compete with tobacco for land. As previously stated, coffee-growing is confined to land where tobacco and general produce cannot be raised profitably. But this does not mean that coffee can be grown on all land not suitable for other crops. Our data show that where the yield of coffee per acre was less than 125 pounds, it failed to pay operating costs, to say nothing of a return on the investment. In other words, land not yielding as much as 125 pounds of coffee per acre might just as well be left out of the farming system.

Whether the individual operator should increase his acreage in coffee, is largely a question of whether with good cultural practices his land will yield, say, 150 pounds or more of coffee per acre, and whether the land in coffee can raise other crops to advantage. Tobacco has largely driven coffee off all land suitable for tobacco. It is likely that this situation will continue. A rise in the price of coffee or a fall in the price of tobacco over a period of years might increase the advantage of coffee in competition with tobacco, but with the demand for crops of a higher per-acre value constantly growing, it is not likely that acreage in coffee can be profitably extended except on land that will not grow tobacco, and even in that case the operator must be sure that the land will produce 150 pounds of coffee per acre or better if he is to secure any return for his labor on coffee.

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[5] For the year of the study, practically no coffee was produced, due to the hurricane. In order to get some idea of the extent to which coffee under normal conditions contributed to income, production for the past five years and the farm price of coffee for those years were used to determine income from this crop. Expenses for cultivation, pruning, and general care were taken for the year of the study. Expenses for harvesting and hauling were allowed at the prevailing rate. Harvesting is practically always on a contract basis. The rate for picking during the last five years has been $4.00 per hundred pounds.

Receipts from bananas planted in coffee were taken for the year 1928. Under normal conditions rceipts from this source would be much greater than in 1928, since a large part of the bananas were destroyed before the harvesting season. Income from bananas will return more quickly to pre-hurricane proportions than income from coffee. Except on farms with considerable acreage in coffee, bananas are profitable as a source of food supply rather than of money income.

Credit is another factor affecting the use of land for coffee. Practically all operating capital is borrowed. The large farmer borrows principally to pay labor. The small farmer borrows operating capital largely to feed his family. In the tobacco country credit facilities are set up to loan almost exclusively on tobacco, and even where credit can be obtained for producing coffee it is usually at a high rate of interest which tends to discourage an increase in acreage.

The opportunity to increase the acreage in food crops appears to be greater than in the case of coffee, but does not tend to supplant tobacco where it is now raised or can be produced at prevailing costs. Only a slight relationship exists between labor income and percentage of land in food crops. The opportunity to increase income from this source lies largely in double-cropping a larger percentage of the land in tobacco. The price of food crops over a period of years is exceedingly variable, due to the weather conditions and to markets. Good weather means a large production of food crops, that have to be sold within a very short time, and prices are, therefore, very low during the marketing season. Beans are exceedingly susceptible to weather conditions. Too much rain during the blooming period means practically no crop.

No opportunity for profitably shifting land in tobacco to pasture was apparent. While the number and kind of livestock kept on farms having the same amount of pasture varies considerably, the prospect of augmenting income from this source by added attention to this branch of farming is largely limited by markets. Some income from dairying is possible, but only for a very few farmers under present marketing conditions. Climate makes the handling of dairy products costly, and only farmers near cities and on paved roads have much chance of thus adding materially to their profits.

A proper selection and combination of different enterprises to obtain a maximum of product at a minimum of cost is important, but under prevailing conditions about the only opening for improvement in this direction is to plant coffee on existing waste land where it will thrive and to increase the amount of land double-cropped. The former would require several years.

IV. PROBLEMS OF THE SMALL FARMER

As might be expected, acreage in tobacco and in other crops, and the amount of livestock carried are largely determined by the size of a farm. Even if efficiency of operation did not improve with the size of the unit, the aggregate return to the operator for his labor and management would normally increase because his business was on a large scale. On the other hand in years of very low prices, or low yields, especially for major products, the heaviest income shrinkage is likely to occur on large farms, although, as we have seen, these enjoy sufficient margin in the cost of producing tobacco per acre to stand a heavier price decline than those of the small farmers. Except for the fact that most of the labor on small farms is unpaid, their operators would lose their capital more quickly from a decline in prices than the large farmers, but since their work is done mostly by members of the family, a decline in prices simply means a lower standard of living.

Farm wages in this region at the time of the study were usually 75 cents per day for adult male laborers. The average number of days of work on tobacco per year was 131, with a free garden patch and an opportunity to cultivate some land in food crops on shares during the dead season. On this basis, a farmer cultivating less than the 20 acres earned less than hired hands, while farmers cultivating from 21 to 41 acres made about the same as the laborers. The earnings of the farmer in each succeeding size group increased to such an extent that operators of farms in the large size groups made much more than hired men.[6]

Wherever opportunity offers, one of the most promising ways to increase the labor income of the operator is through combining small farms. Because of topographic difficulties, however, there are many small farms which, even with capital and managerial ability available, could not be operated to advantage as parts of larger enterprises. Such farms are in out-of-the-way places, where the amount of tillable land is very small. Others lie in districts where the soil is so poor that profitable farming is impossible, and only a bare existence can be extracted from it. Nevertheless, such is the density of population and the lack of alternative opportunities, that it is necessary to cultivate this land. A large proportion of the small farms would be considered marginal under most conditions, but as long as a bare living can be obtained from them they will continue to be operated.

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[6] See also Chapter II.

Even where larger units are not possible, there is considerable opportunity for the small farmer to increase his income through better organization and operating methods. A number of small farmers were making good labor incomes. Certain basic data concerning farm organization and operation for farms in the three smaller size groups are given in the following table, comparing farms according to net returns to farm operators.

Factors of Organization and Operation for Farms Showing Highest and Lowest Net Returns

Three Size Groups, by Acreage in Tobacco

Item	6 Acres or Less		7–13 Acres		14–20 Acres	
	Highest	Lowest	Highest	Lowest	Highest	Lowest
Number of farms	11	10	12	11	16	15
Acres per farm	24.4	31.7	37.5	33.2	83.6	103.5
Operator's income (dollars)	159	–325	293	–206	709	–85
Acres in tobacco	5.3	3.8	9.1	8.3	17.9	17.5
Yield per acre (100 pounds)	7.1	6.5	6.4	5.6	6.7	5.6
Dollars per 100 pounds received for tobacco	29.00	23.87	28.42	25.28	31.18	25.97
Fertilizer per acre (pounds)	730.9	781.1	717.7	626.6	819.6	719.9
Credit per acre of tobacco (dollars)	128	122	107	117	93	99
Labor per acre of tobacco (dollars)	132	153	112	140	99	116
Acres in coffee	5.0	3.6	6.1	1.6	11.3	18.9
Acres in food crops	11.9	14.1	18.4	13.9	31.1	25.4
Percentage of land in crops double-cropped	.4	.3	.6	.3	.4	.3
Percentage of land in pasture	.3	.2	.2	.3	.3	.3
Percentage of land that is waste land	3.7	30.6	12.3	25.1	12.7	23.8

Eleven farms in the group of 22 having six acres or less of tobacco made an average income for labor and management of $129, while operations for ten resulted in an average loss of $325. Those making the highest labor income had a larger percentage of their land in tobacco, obtained a slightly better yield of tobacco per acre, secured a considerably better price, and produced tobacco at a saving of $20 per acre in labor as compared with the general average. The same differences between those making the highest labor income and the lowest labor income present themselves in the case of farms in the groups having from 7 to 13, and from 14 to 20, acres in tobacco. In practically every size group farmers making the highest labor income had a larger percentage of their land in tobacco than those making the lowest labor income. They also had more barn space in proportion to their tobacco acreage, which may be the cause of the better price they received for their crops.[7]

Probably the best way for the small farmer to increase his income is to copy the organization and operating methods employed by those who are succeeding on farms of the same size and under comparable conditions. To aid the farmer further in this connection, a study of a larger number of small farms is necessary. Only by carefully collecting and properly analyzing data from a large number of farms can the real reason for widely varying returns to operators be determined.

V. CERTAIN FACTORS AFFECTING EFFICIENCY OF OPERATION

The largest part of the operating costs of the farms here studied was for labor—including that of the operator and unpaid members of his family. Therefore, efficient labor administration is an important factor influencing farm income. Data concerning the amount of labor expended on tobacco, and also on coffee where coffee was important, were obtained. Since about 90 per cent of all the labor used on these farms is employed in raising tobacco, its efficiency in connection with that crop was a determining factor in the profitableness of their operations.

The returns received for labor and management by tobacco farmers classified according to the acreage they had in tobacco, is shown in the following table:

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[7] See page 691.

Tobacco Farmers With Specified Income for Labor and Management
Grouped by Tobacco Acreage

Acres in Tobacco	All Income Groups	Net Loss	$0–$200	$201–$400	$401–$600	$601–$800	Over $800
6 or less	22	15	5	—	1	—	1
7–13	23	12	5	2	3	—	1
14–20	31	7	4	5	1	2	12
21–27	10	3	2	—	1	1	3
28–34	7	1	—	3	—	1	2
35–41	5	1	—	—	1	2	1
42–63	9	2	—	—	—	—	7
Over 63	13	3	1	—	1	—	8
All Classes	120	44	17	10	8	6	35

Farmers with net receipts per acre below $20 were equally badly off, whether they had less than six acres or over 40 acres in tobacco. Their earnings were uniformly low. But where net earnings were above $40 per acre, differences in the number of acres in tobacco were reflected in corresponding differences in labor income.

One-fourth the farmers having six acres or less in tobacco, and 10 per cent of the farmers with from 7 to 13 acres in tobacco had no oxen or mules, the labor of preparing land and cultivating crops being entirely manual.

One practice favoring efficient operation, but not covered by the data gathered, was a simple accounting system used by a number of farmers designed to show each day or each week to what extent the cost of the various operations varied from similar costs for other years and the reasons why. Where such accounts were kept, the farmer usually located any weak point in his operations before increased costs had become excessive. Out of the 21 farmers keeping such accounts, only four were found on farms with less than 20 acres in tobacco. These accounts were used, as a rule, only where a relatively large number of laborers was employed. They were not of the cost accounting type, but were so kept as to let the farmer know at the end of each day or each week to what extent his costs were excessive and at just what point and in what particular operation costs had risen.

The relation between tobacco prices and farm earnings was as close as might be expected. Even with high prices, however, six farms failed to earn $20 per acre, and three failed to earn $16 per acre, indicating that high prices alone are not sufficient to insure good returns from tobacco.

Price of tobacco as between farms was related to barn space. The farmer having more than the average amount of curing barn space per acre received a slightly higher price for his tobacco, the amount of curing space available apparently affecting the quality of tobacco. Small farms, as a rule, had less barn space per acre than larger farms. Since the injury to the quality of tobacco from wet weather occurs mostly during the curing process, it is likely that an even closer relation would manifest itself between price and barn space during years of heavy rainfall than existed the year of the present study, which was normal in that respect.

Another factor affecting returns from tobacco-growing is naturally the yield per acre. The relation between yield per acre and the net yearly income received by the farm operator is shown by the following table:

Tobacco Farmers With Specified Income for Labor and Management Grouped by Average Yield Per Acre

Pounds of Tobacco per Acre	All Income Groups	Net Loss	$0–$150	$151–$300	$301–$450	$451–$600	$601–$750	$751–$900	$901–$1,050	Over $1,050
400 or less .	11	10	—	1	—	—	—	—	—	—
401–450....	5	4	—	—	—	1	—	—	—	—
451–500....	20	9	3	2	1	1	2	—	—	2
501–550....	9	3	—	2	—	—	1	1	1	1
551–600....	22	7	2	2	1	1	1	2	1	5
601–650....	13	4	2	1	—	1	2	—	—	3
651–700....	10	2	2	1	1	—	—	—	—	4
701–750....	7	1	1	1	1	—	—	—	—	3
751–800....	11	2	1	2	—	2	—	1	1	2
801–850....	2	—	—	—	—	—	—	—	—	2
851–900....	3	2	—	—	—	—	—	—	1	—
901–950....	1	—	—	—	—	—	—	—	—	1
951–1,000 ..	5	—	1	—	—	—	—	—	—	4
Over 1,000..	1	1	—	—	—	—	—	—	—	—
All classes	120	45	12	12	4	6	6	4	4	27

Farmers making the largest labor income had average yields approximately 20 per cent greater than those for all farms. To assume, however, that this is the only factor, or the most important factor, determining returns from growing tobacco is erroneous; for, as the table just given shows, some farms with a high yield per acre reported low earnings.

The data collected indicate that only a small addition to the crop resulted from increasing the application of fertilizer; and that the quantity of fertilizer used per acre bore no consistent ratio to profits per acre. These data, showing the amount of fertilizer used per acre in relation to per-acre yields and per-acre earnings of the farms covered by the survey, are shown in the table below.

FARMERS USING INDICATED AMOUNTS OF FERTILIZER PER ACRE
I. Grouped According to Per-Acre Yields

Per-Acre Yield (In pounds)	All Farmers	500 Lbs. or Less	501–600 Lbs.	601–700 Lbs.	701–800 Lbs.	801–900 Lbs.	901–1,000 Lbs.	Over 1,000
400 or less.........	11	3	3	2	2	—	—	1
401–450	4	—	—	3	—	1	—	—
451–500	21	7	4	3	3	—	2	2
501–550	9	2	—	1	1	1	4	—
551–600	22	3	7	4	4	2	1	1
601–650	14	5	1	2	2	1	1	2
651–700	9	2	—	2	2	1	2	—
701–750	7	2	1	—	2	1	—	1
751–800	11	—	2	1	1	1	4	2
801–850	2	1	1	—	—	—	—	—
Over 850	10	2	—	1	2	2	2	1
All Classes	120	27	19	19	19	10	16	10

II. Grouped According to Per-Acre Earnings

Earnings Per Acre (In dollars)	All Farmers	500 Lbs. or Less	501–600 Lbs.	601–700 Lbs.	701–800 Lbs.	801–900 Lbs.	901–1,000 Lbs.	Over 1,000
Loss of more than 40	12	3	2	—	3	1	1	2
Loss of 40–21......	5	1	—	2	1	—	1	—
Loss of 20–0.......	5	1	—	1	1	—	1	1
Gain of 1–20.......	20	4	5	3	4	1	—	3
Gain of 21–40......	31	7	7	2	4	4	5	2
Gain of 41–60......	19	2	2	7	2	—	5	1
Gain of 61–80......	12	4	2	—	2	2	1	1
Gain of 81–100.....	8	2	1	1	1	2	—	1
Over 100	8	2	3	2	1	—	1	—
All Classes	120	26	22	18	19	10	15	11

Better methods of cultivation, intelligent seed selection, and careful selection of land apparently were of greater significance than the use of fertilizer.

VI. COST AND USE OF CREDIT

Credit is a very important item affecting production cost. Practically all current operating expenses, including both materials and labor, are paid with borrowed funds. Interest is a direct charge against production. The table below

OPERATING CREDIT FOR FARMS WITH SPECIFIED TOBACCO ACREAGE

Size-Group (In terms of tobacco acreage) and Credit Source	Amount By Source and Size-Group	Percentage From Given Source For Each Size-Group	Rate of Interest	Form	
				Provisions	Cash
6 ACRES OR LESS	$13,795	100.0	9.9	$8,915	$4,780
Merchant	8,290	60.1	11.0	6,440	1,850
Individual	3,880	28.1	9.3	1,950	1,930
Intermediate Credit Bank	1,625	11.8	6.0	525	1,000
7–13 ACRES	27,351	100.0	9.3	13,766	13,585
Merchant	14,619	53.5	10.6	9,569	5,050
Individual	5,150	18.8	10.6	750	4,400
Intermediate Credit Bank	7,582	27.7	6.0	3,447	4,135
14–20 ACRES	57,739	100.0	8.6	27,934	29,805
Merchant	21,530	37.3	10.5	15,480	6,050
Individual	13,404	23.2	9.1	2,014	11,390
Bank	2,900	5.0	10.8	250	2,650
Intermediate Credit Bank	19,905	34.5	6.0	10,190	9,715
21–27 ACRES	36,209	100.0	9.3	14,004	22,125
Merchant	22,734	62.8	9.9	14,004	8,650
Individual	5,600	15.5	10.7	—	5,600
Intermediate Credit Bank	6,375	17.6	6.0	—	6,375
Bank	1,500	4.1	8.0	—	1,500
28–34 ACRES	37,420	100.0	8.7	3,630	33,790
Merchant	7,750	20.7	10.2	2,750	5,000
Individual	6,850	18.3	12.0	—	6,850
Intermediate Credit Bank	15,320	40.9	6.0	880	14,440
Bank	7,500	20.1	9.6	—	7,500
35–41 ACRES	25,625	100.0	7.9	1,150	24,475
Merchant	1,950	7.6	10.5	1,150	800
Individual	5,775	22.5	10.0	—	5,775
Bank	6,000	23.4	9.0	—	6,000
Intermediate Credit Bank	11,900	46.5	6.0	—	11,900
42–63 ACRES	75,552	100.0	8.0	22,651	52,901
Merchant	31,502	41.7	8.3	12,501	19,001
Individual	28,100	37.2	8.9	8,800	19,300
Intermediate Credit Bank	15,950	21.1	6.0	1,350	14,600
OVER 63 ACRES	232,205	100.0	8.6	64,805	167,400
Merchant	53,741	23.1	9.5	41,741	12,000
Individual	27,500	11.9	8.1	3,800	23,700
Bank	108,456	46.7	9.3	18.256	90,200
Intermediate Credit Bank	42,508	18.3	6.0	1,008	41,500

shows source, form, and rate of interest for operating capital by farms grouped according to their tobacco acreage. The average rate of interest paid by all farms for borrowed capital was 8.6 per cent. The smaller the acreage in tobacco, the higher the average rate of interest. Farmers with six acres or less under tobacco paid considerably more for operating credit than farmers with more than 63 acres in the same crop.

Mortgage Credit for Farms With Specified Tobacco Acreage

Size-Group (In terms of tobacco acreage) and Credit Source	Amount By Source and Size-Group	Years to Maturity	Rate of Interest	Value of Property	Mortgage as a Percentage of Value of Property
6 ACRES OR LESS	$3,930	—	11	$12,162	32.3
Federal Land Bank	570	1.5	6	3,952	14.4
Individual, 1st Mortgage	3,360	1	12	8,210	40.9
7–13 ACRES	7,000	—	8.7	34,144	20.5
Federal Land Bank	2,600	4.5	6	14,860	17.5
Individual, 1st Mortgage	4,400	1.2	10.3	19,284	22.2
14–20 ACRES	45,300	—	7.4	178,123	25.4
Federal Land Bank	32,300	4.5	6	111,362	29.0
Other Banks, 2nd Mortgage	900	1	9	—	—
Individual, 1st Mortgage	12,100	2.2	11.2	66,761	18.1
21–27 ACRES	20,600	—	6.5	55,240	36.0
Federal Land Bank	17,600	1	6	47,290	37.2
Individual, 1st Mortgage	3,000	2	10	9,950	30.2
28–34 ACRES	35,800	—	7	157,091	22.9
Federal Land Bank	22,800	4	6	88,358	25.8
Other Banks, 1st Mortgage	12,000	—	9	40,860	29.4
Individual, 1st Mortgage	1,000	4	12	26,873	37.2
35–41 ACRES	23,500	—	6	116,803	20.1
Federal Land Bank	23,500	2.8	6	116,803	20.1
42–63 ACRES	73,700	—	6.2	240,983	30.6
Federal Land Bank	53,400	1	6	148,097	36.1
Other Banks, 2nd Mortgage	300	2	10	—	—
Individual, 1st Mortgage	20,000	1.5	7	92,886	21.5
OVER 63 ACRES	130,000	—	7.8	284,671	45.7
Federal Land Bank	29,000	2.6	6	78,714	36.8
Other Banks, 1st Mortgage	7,000	11	8	116,719	60.0
Individual, 1st Mortgage	94,000	1	8.3	89,238	105.3

It is generally assumed that the cost of extending credit to small farmers, including risk and cost of supervision, is higher than that of lending to larger operators. For the farms here studied, the different size groups show practically no difference in the ratio of farm earnings to total borrowings.

In so far as this ratio can be taken as an indicator, therefore, it would seem that the risk on farms with a small acreage in tobacco was no greater than on farms with a larger area under tobacco. It is probable, however, that the cost of looking after loans is relatively higher on farms with a small tobacco acreage.

Further analysis of the data collected shows that the ratio of indebtedness—including mortgages on real estate and borrowings for operating—to the value of the farm was lower in case of the smaller properties. Borrowings per acre were no greater on the small farm. The table on page 694 shows the sources of mortgage credit for farms in the different size-groups, the rate of interest paid, and the ratio of borrowings to property values.

In some cases, indebtedness affects the price received by the farmer for his crops: if he has only a small acreage under tobacco his obligations to the lender may prevent his securing a proper grading for his crop, or the full market price for it. Since it may be that as much as 90 per cent of his operating capital is borrowed, a close connection between credit and marketing is unavoidable. In fact, the creditor in practically every instance determines who the buyer shall be, and generally is himself the buyer.

A comparison of the average price received by all farmers selling to supply merchants with the price received by 21 farmers selling through the farmers' co-operative in Cayey indicates that the former received approximately 6.2 cents per pound less than the latter. To what extent these price variations were due to differences in quality is not known. The farmers selling to merchants were small operators, however, as compared with those selling to the *tabacaleros,* or co-operatives and, as previously pointed out, the average price received by small farmers was less than that received by large farmers. It should also be pointed out that many of the co-operatives have not been as successful as Cayey in disposing of their tobacco to advantage. As a matter of fact, some of them have even paid their members less than was received by farmers who did not sell through these organizations.

The Intermediate Credit Bank has made a very good start toward supplying farmers with credit and marketing their tobacco. However, the co-operative associations under the direction of the Intermediate Credit Bank could, to the profit of all concerned, provide men trained in farm management and marketing to act as their field agents. The duty of this personnel would be to help the small farmer, not trained to produce under a highly commercialized type of agriculture, to lower his cost of production and to produce a commodity better suited to market demands. This would involve among other things the development of better methods of organization for farm enterprises and the institution of cost accounting which would enable the farmer to determine and compare the costs of various operations. Proper grading of the product and the payment on the basis of quality would furnish a powerful inducement to the farmer to improve the grade of tobacco he produces.

It is very difficult to find the type of leadership necessary to enable a co-operative to do a good job of marketing. The real problem of marketing associations is (1) To get men of ability to analyze market conditions and to determine within reasonable limits what tobacco is worth; and (2) to secure a trained personnel as field supervisors to aid the farmer in organizing the farm on an efficient basis.

The best co-operatives are now well prepared to grade and care for the tobacco they receive, and pay their members on the basis of the actual quality of the tobacco which each brings in. But the services which many of the co-operatives furnish the farmer are not the equivalent of those furnished by the supply merchant. Furthermore, farmers in co-operative associations must usually wait longer for final settlement than those who sell to the merchant. Until the College of Agriculture and the agricultural extension forces have had time to redirect their program and to train farmers to think and act in terms of economic production, it will be necessary for the credit agencies to provide the direction essential for this object.

In the past the primary purpose of the supervision exercised in connection with the extension of credit was to protect the creditor. It was primarily concerned with making certain that advances were not spent for purposes other than the raising of a crop. However, it was also directed to getting the maximum yield per acre. It might on first thought appear that, since credits and markets are now both supplied by the same firm or individual, the farmers' situation would be improved by divorcing credit agencies from marketing agencies. It appears, however, that it is not so important to separate these agencies as it is to see that they render the service needed. The units are small and the supervision required in granting credit can economically be extended to eliminate some of the costs of marketing. Apparently, it will be necessary for a long time to come for those who furnish credit to the tobacco farmer to have charge of marketing his crop.

VII. SUGGESTIONS FOR INCREASING THE OPERATOR'S RETURNS

A high degree of variation in earnings was shown by the farms included in this study. Many farmers, especially those with small acreages of tobacco, made very low wages. The most important factors affecting their earnings were the respective areas of various crops and of utilized grazing lands on their farms, and the ability with which they operated their enterprise. In respect to the former the number of acres under tobacco was decisive, and in respect to the latter, the efficiency with which they utilized their labor. Farms with 20 or more acres of tobacco afforded a better paying crop and livestock combination and a more efficient use of labor than those of smaller area. Income from coffee, miscellaneous crops, and livestock added appreciably to the earnings of the operator, especially on larger farms.

Further double-cropping of land in tobacco and food crops awaits to some extent better marketing facilities for the latter, but tends even at present to augment farm incomes. Food crops have to be consumed or sold soon after they are harvested, and because they often glut the existing market at that period are not produced as extensively as the land available permits. Centrally located cold storage houses that would take care of these temporary surpluses, which now demoralize prices, would increase the production of such crops.

Waste land is a direct charge against the operator's earnings. Where these lands are not suited for crops or pasture the cost of holding them subtracts from farm income. They are more burdensome to the small farmer than to the large one, for they are valued higher when parts of small holdings, and add correspondingly to capital charges and taxes.

Labor is by far the most important item in the tobacco farmer's expense account. Economies in the use of labor therefore contribute most to increase farm incomes. The employment of labor on a piece-work basis, rather than on day wages, appears to reduce costs and at the same time to enable good workers to earn more.

On the average, operators of larger farms can produce tobacco with less labor per hundred pounds or per acre than those on small farms. While there is little difference in the number of work oxen per acre of tobacco between the various size groups, the number of laborers per work ox is less on the larger farms.

A yield per acre somewhat above the present average is necessary to give good farm returns. Yields secured by heavier applications of fertilizer and additional labor do not increase farm earnings in proportion to their cost. Small farmers obtain slightly larger crops per acre than large farmers, but because of their small acreage their total earnings are less than they would receive if working for wages.

Efforts to aid the small farmer to improve his present situation should include further study of a larger number of small farms, designed to find out in detail to what features of organization and operation those who are making money owe their success. This is the most direct way to enable the farmer on any size farm to increase his income, but since large farmers are better able financially to experiment for themselves the small farmer should be given first consideration.

Credit is so closely related with farm income, through the price the farmer gets for his crop and the rate of interest he must pay for what he borrows, that a considerable part of the small tobacco grower's trouble might be remedied by more adequate and cheaper loan facilities.

Greater efficiency in the use of land through double-cropping has been given but little attention by credit agencies. In fact, economical production in general has entered but little into their calculations. Although farmers' income might be considerably increased through a better method of marketing food crops, practically no attention has been given to the problem.

Better storage facilities are needed to prevent deterioration. Better methods of collecting and distributing perishables are imperatively demanded. The problem of supplying the larger cities with local fruits and vegetables produced on a small scale by the small farmer remains practically untouched. These services and functions, to be sure, are not necessarily responsibilities of the credit agencies, even though the latter may employ semi-trained supervisors to look after the safety of their loans and to make certain of receiving the borrowers' crops. However, since this supervision is necessary and probably will be necessary for years to come, and since it is paid for by the farmer, this supervision might take on a positive rather than its present negative character. This would benefit the creditor as well as the farmer.

There is no reason why supervision by the credit agency cannot be made a positive factor to the benefit of both the farmer and the firm supplying the credit and doing the marketing. Unless he has a type of supervision that will enable him to perfect a better farm organization and to secure more efficiency in his operations, the small operator may be expected to disappear. He cannot meet the demands of a specialized agriculture and survive in face of the lower cost of production on large farms in his own area.

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